MANAGEMENT CLOSE-UP: ILLINOIS CENTRAL

September 14, 1970

RAILWAY AGE

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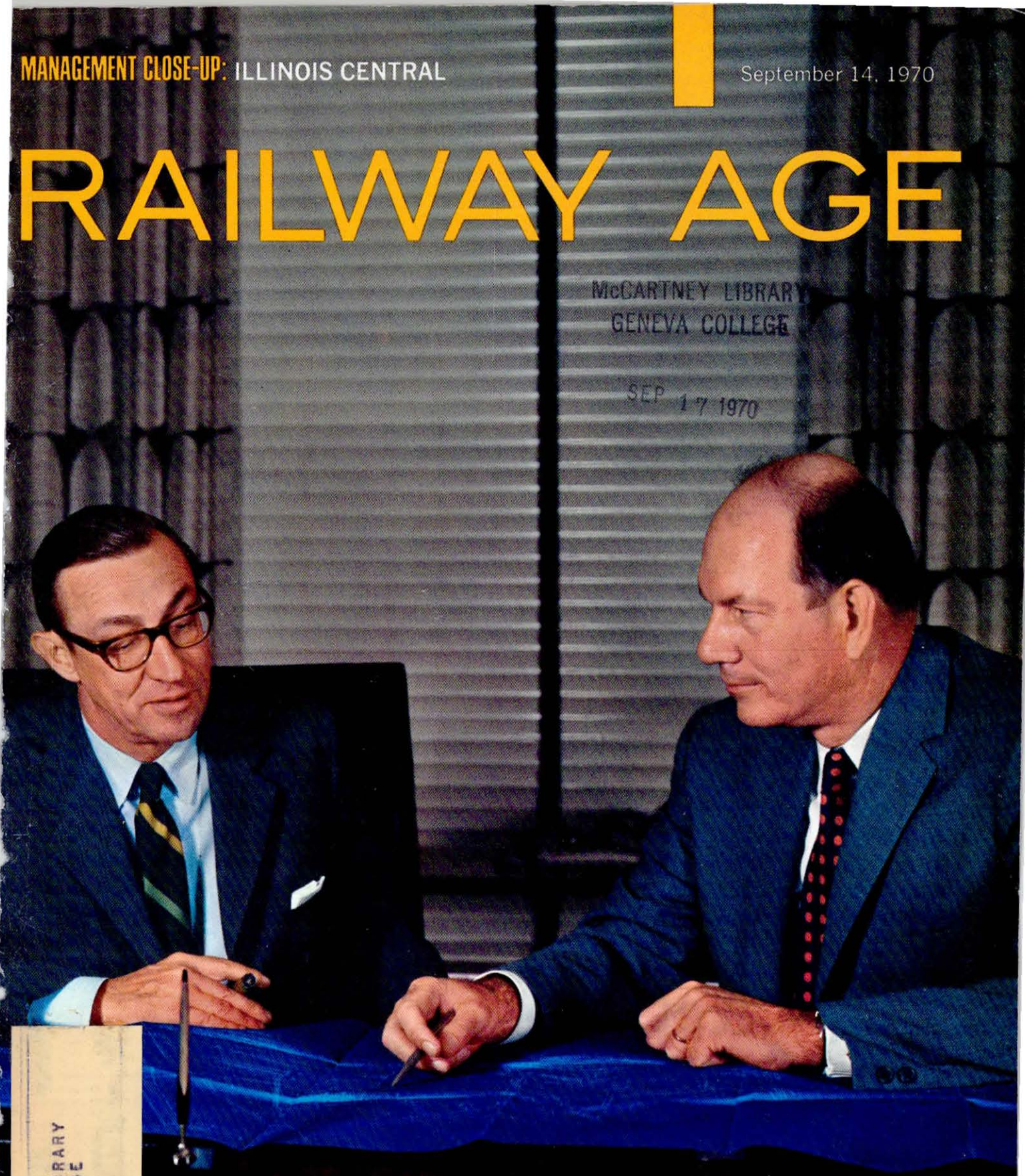

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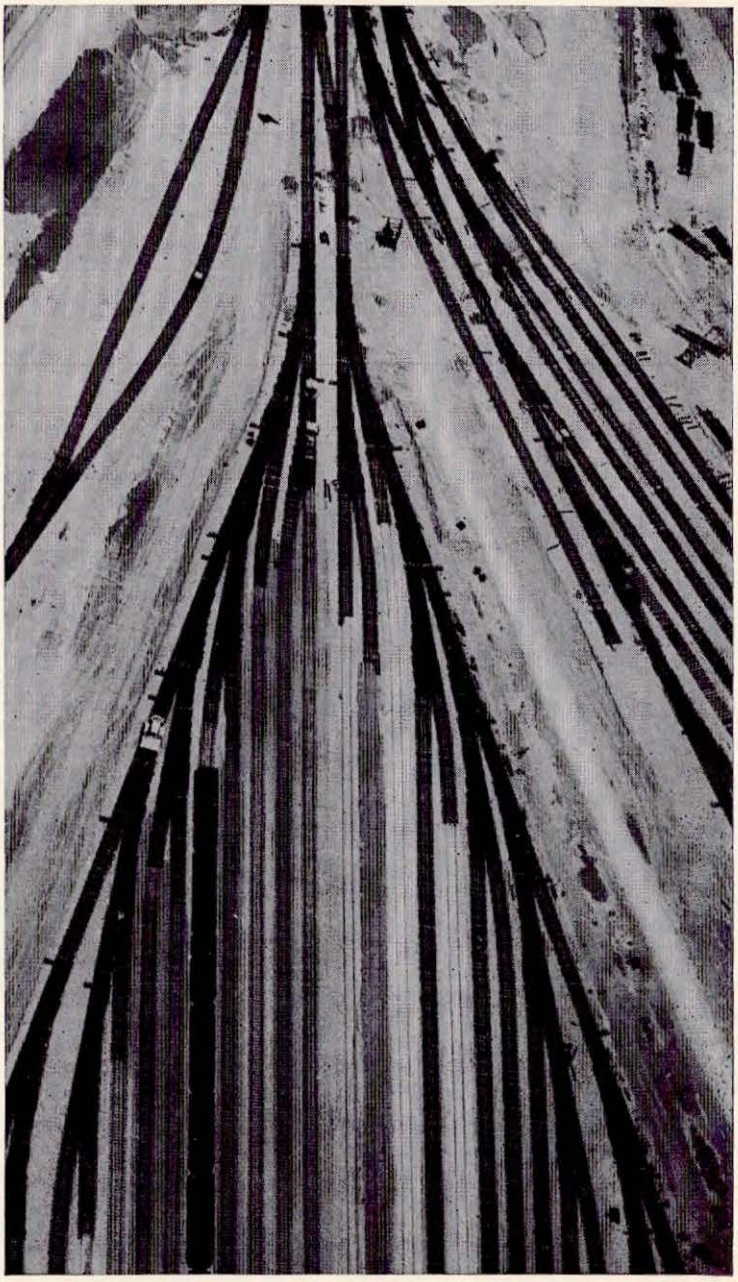

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Inside

LUTHER MILLER

JOHNSON & BOYD REVISITED

If consistency is, as Carlyle once suggested, the hobgoblin of little minds, then Bill Johnson and Alan Boyd must be regarded as exceptions. Taping sessions with these gentlemen, as Railway Age editors have established on several occasions, are invariably mind-stretching sessions. Yet there is a remarkable consistency in what they say today, as heads of Illinois Central and its expanding empire, and what they said yesterday in far different jobs.

Johnson was president of REA Express when interviewed for a Railway Age cover story Jan. 28, 1963. He said then, with passion, "We could do better for the public if there were some way that the ICC could move faster and with a more practical consciousness of the needs and ways of the marketplace." Today he says, with equal fervor, "The ICC operates too much as a court and too little as an informed policy-maker." In the story which begins on page 44, Johnson not only has some explicit advice for the Commission—he also has some powerfully good implicit advice on how the Commission should regard railroad-based conglomerates.

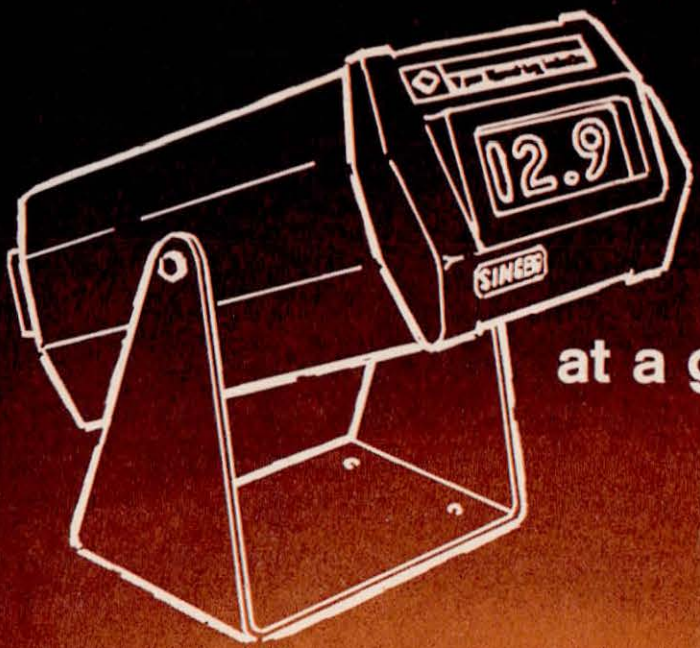
Alan Boyd was Secretary of Transportation when he talked with Railway Age for a cover story published Feb. 5, 1968. Boyd asserted then, "If we are to have a railroad industry, we have to promote innovation." Acknowledging that railroads labored under many problems not of their making, he did not let management off the hook, declaring that too many managers had for too long thought they were "just supposed to sit there with a depot in every town and expect the kindly, benefitted public to bring its goods trundling down."

Today Boyd is hotter than ever on the subject of innovation. And though he now belongs to "the club," he still talks tough about management." Railroads have been hurt by problems in management," says Boyd. "We're not providing the kind of service we should be providing." For his views on what railroads should be doing, see page 47.

THE WSJ TAKES ANOTHER LOOK

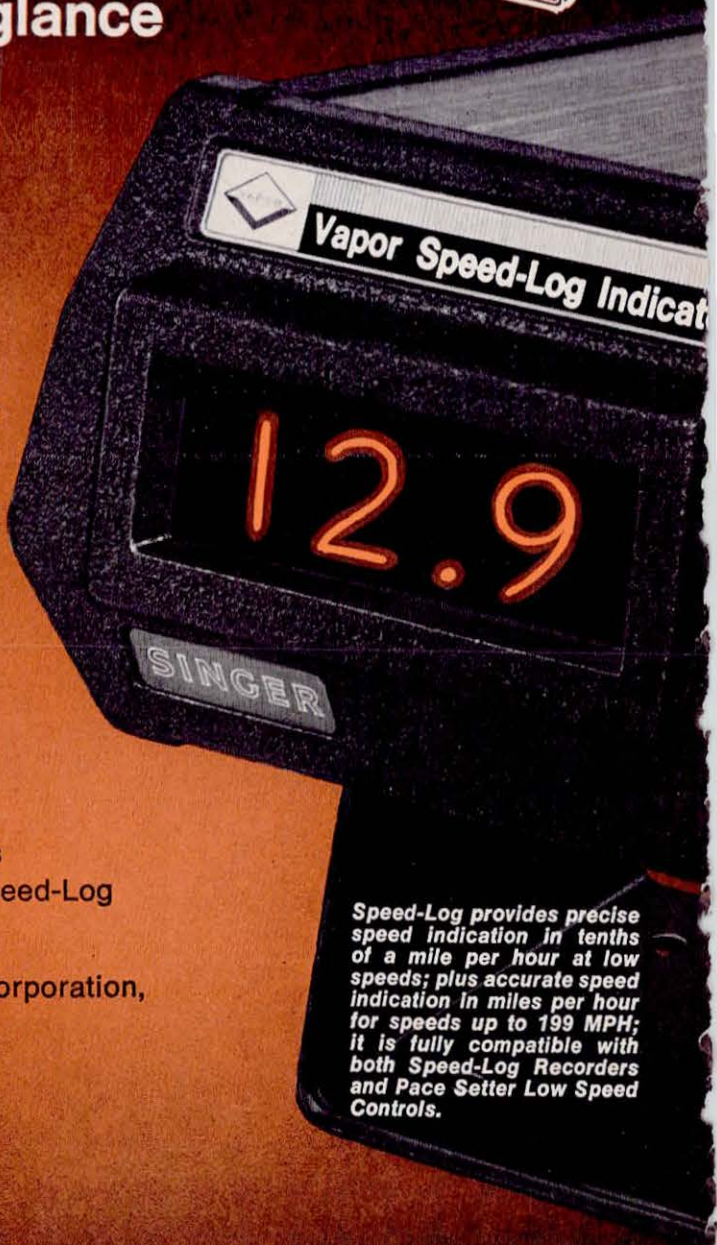
The Wall Street Journal on July 17 published a news story which purported to tell how Britain's nationalized railway "makes money stressing its passenger service." Railway Age, Aug. 10, published an editorial ("The Press: Amateurs vs the Pros") suggesting that the Wall Street Journal was all wet. Meanwhile, WSJ received and published a letter from British commuters suggesting that WSJ's reporter was at least damp behind the ears. On Aug. 27, WSJ published its own editorial. It began: "Critics of U.S. rail passenger service often point to the government-run lines in such nations as Britain and Japan as examples for the U.S. to emulate. . ." It ended: "It should be apparent . . . that nationalization offers no miracle solution, either here or abroad." Hats off to the WSJ pros!

any way you look at it....



at an angle

at a glance



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RAILWAY AGE

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Short and Significant

EQUIPMENT

FREIGHT-CAR-CORPORATION BILL READIED

The National Freight Car Corporation Act, with strong backing from both the railroad industry and the shipping community, was ready last week for introduction in the Senate. The bill would provide Federal credit guarantees for carbuilding and capital debts incurred by a new non-profit corporation capitalized by the railroads and governed by an 11-man railroad/shipper/government board.

CAR-ORDER BACKLOG DECLINES

Deliveries of new freight cars continue to outpace orders, with the result that the backlog at carbuilders' shops is getting smaller. In this year's first seven months, 26,190 new cars were ordered; 40,510 cars were delivered, eating heavily into the backlog built up last year. On Aug. 1, the undelivered backlog totaled 29,040 cars, compared with 30,149 on July 1 and 51,233 on Aug. 1, 1969.

PASSENGERS

GE IS APPARENT LOWER BIDDER ON PC CARS

General Electric, attempting to enter the commuter-car business for the first time as a prime contractor, was the apparent lower bidder on 144 cars which New York and Connecticut plan to purchase for Penn Central's New Haven division. But GE's bid of $61.9 million—which New York's William J. Ronan said would average out at $422,000 a car when variables were considered—was still so high that state authorities were considering (1) scaling down the order and (2) applying for two-thirds rather than one-half Federal aid. Only other bidder was Pullman-Standard, whose $68.5 million, said Ronan, would average out at $476,000 per car. St. Louis Car Division of General Steel Industries did not bid, reportedly because of its high backlog of orders.

PENN CENTRAL HIKES COMMUTER FARES

Penn Central commuters in the Philadelphia area began paying higher fares Sept. 1. The increases will yield an estimated $2 million a year, but will still leave the railroad with an annual loss of $1.5 to $2 million in the Philadelphia area.

THE INDUSTRY

SHIPPERS BOARDS TRY TO STAY ALIVE

Facing the loss of financial support formerly provided by the AAR, the 13 Regional Shippers Advisory Boards are casting around for ways to stay in business. One possibility: Assessment of nominal annual dues, perhaps $5 to $10 a year. The 20,000 shipper-members of the regional boards, which are designed to maintain close liaison between railroads and their customers, now pay no dues. Directors of the National Association of Shippers Advisory Boards will meet in Des Plaines, Ill., Oct. 5 to discuss their future.

USPHS ATTACKS WASTE-DUMPING

The U.S. Public Health Service will soon publish a proposed rule-making requiring that all rail passenger cars, locomotives and cabooses constructed after December 1971 be fitted with full-retention toilet facilities. "The public's expectation in the field of waste management will no longer tolerate the practice of dumping waste onto railroad trackbeds," said Dr. Charles C. Edwards of the U.S. Food and Drug Commission. He added that discussions will be held with Federal regulatory agencies with respect to requiring retention facilities on existing rail vehicles.

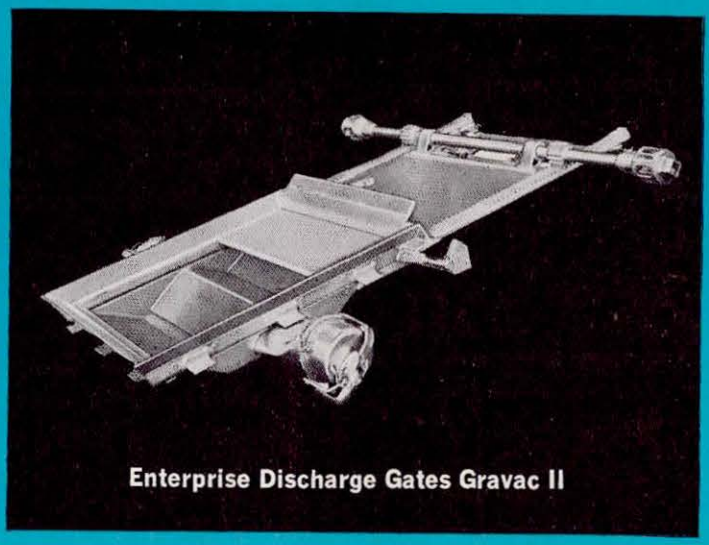
PENN CENTRAL SCORES IN PLANT LOCATION

Penn Central's industrial development department, headed by Samuel H. Hellenbrand, helped bring 292 new industries on line in the first seven months of 1970. Anticipated extra freight revenue is $31.2 million a year—16% higher than that estimated for the comparable 1969 period.

RAILS' SPENDING PLANS HOLD STEADY

As of mid-summer, when the Department of Commerce made its latest survey of capital spending plans, railroads and private car lines still planned to invest a total of $1.86 billion in new plant and equipment this year—the same amount spent in 1969.

FAST DISCHARGE



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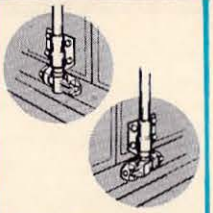

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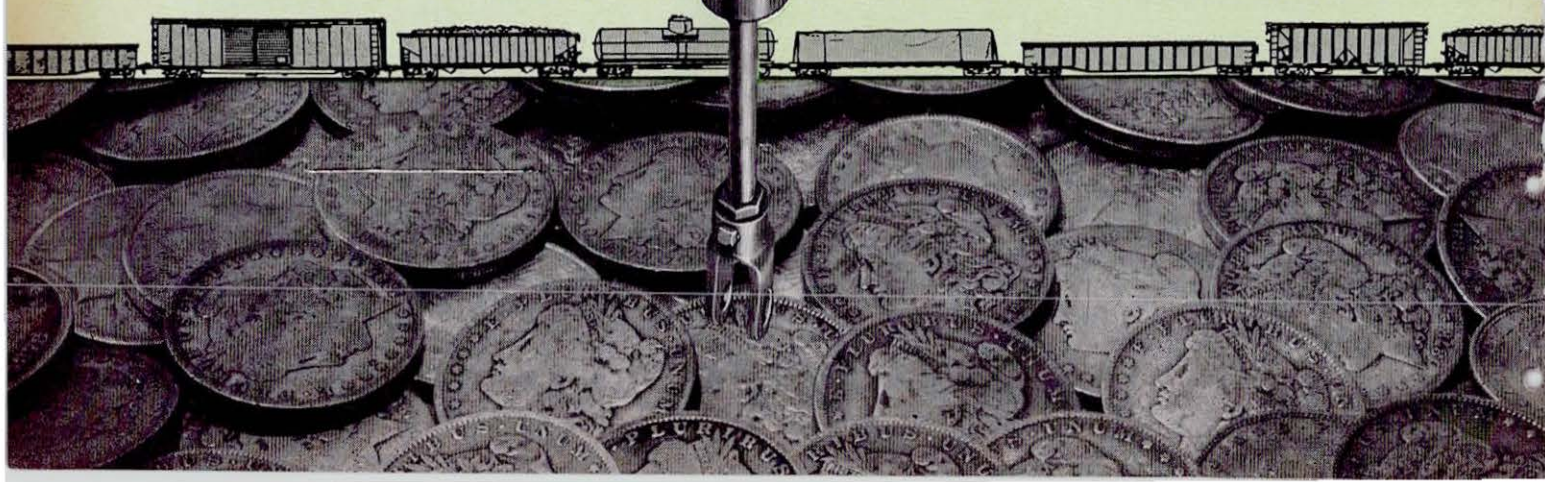


RAILWAY AGE NEWS

ICC will probe adequacy of rates

The ICC will open hearings Sept. 21 in a sweeping investigation of "the adequacy of freight rates and charges of all U.S. railroads." The Commission acted in the wake of a petition by virtually all Eastern and Western roads for increases totaling 15%—8% on Sept. 5 and 7% on Nov. 1.

The Commission denied that request, but left the door open for railroads to file for another increase to become effective Nov. 18, after 60 days notice.

Simultaneously, the ICC asked all major railroads to submit data concerning transactions with non-railroad affiliates as part of the planned rate-adequacy study.

Southern railroads did not join in the request for a 15% increase, nor did Illinois Central and Frisco. They indicated they would seek more modest hikes toward the end of the year.

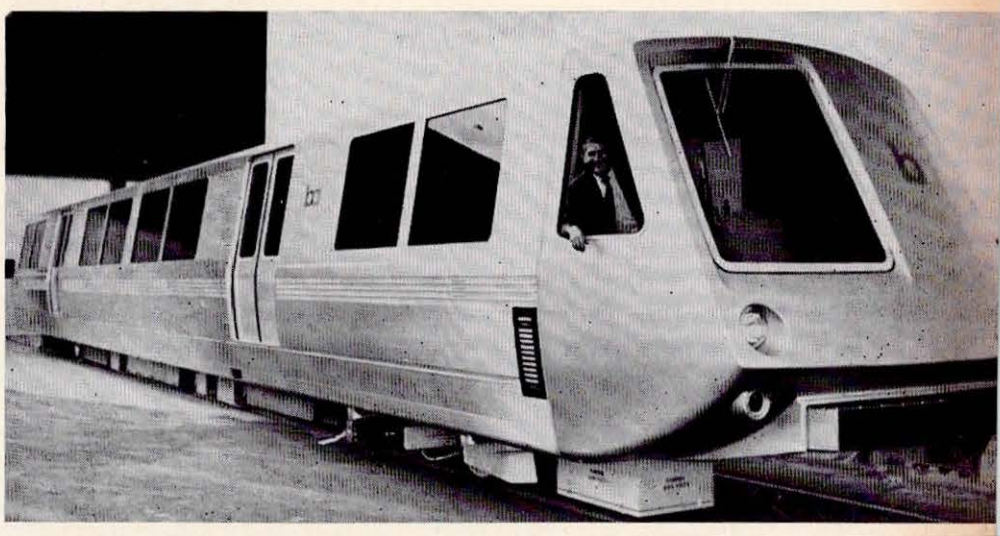
The petitioning carriers cited the "continuing fact of cost inflation" which they said has "outrun" previous rate increases.

The petition noted that three roads —Boston & Maine, Penn Central and Lehigh Valley—entered bankruptcy this year and warned that others might follow. Specifically mentioned were Reading and Maine Central.

Penn Central Trustee Jervis Langdon, Jr., pointed out that "even before interest and taxes . . . Penn Central has a negative cash flow, a condition which obviously must be reversed." He noted that as of Aug. 1, PC had 2,105 miles of slow orders.

Dr. Burton N. Behling, AAR vice president for economics and finance, said in a statement to the ICC that the increase would provide $631 million for Eastern roads and $807 million for Western roads. He warned that "time is fast running out on prospects for preserving a viable railroad system able to serve the nation's future economy."

Behling said the industry's net working capital declined from $636 million in 1965 to a deficit of $322 million as of last June 30. He said $3.3 billion in long-term debt falls due between 1971 and 1975.



BART prototype car rolls in—on time

Right on schedule, the first production prototype car for Bay Area Rapid Transit arrived in the San Francisco region at the end of August. A total of ten such cars are to be delivered from the Rohr Corp. plant at Chula Vista, Cal., before the end of 1970. Rohr, along with BART engineers and consultants, is to carry out six months of extensive testing to evaluate the cars' design, fabrication and performance.

During 1971 production will begin on the remainder of the 250-car order. Sixty are to be delivered in time for BART revenue operations to start just over a year from now. At the rate of one car per day, the entire order is scheduled for completion in mid-1972.

At the prototype delivery, BART General Manager B. R. Stokes observed: "We have been looking for this first operational car for five years. To say that we're looking forward to evaulating its performance would be the understatement of the year. Shop testing will begin immediately on this and the other prototypes as they come in. All systems and components in each car will be thoroughly tested before they are operated together as trains on the Southern Alameda Line." Rohr is trucking the cars from its assembly line near Los Angeles to the BART maintenance facility at Hayward.

In the $66.7-million order are 150 A (or cab) cars, each 75 feet long and 100 70-foot B cars for mid-train service. Each car will seat 72 passengers. BART trains are to be two to ten cars in length and will operate on 90-second headway in peak periods.

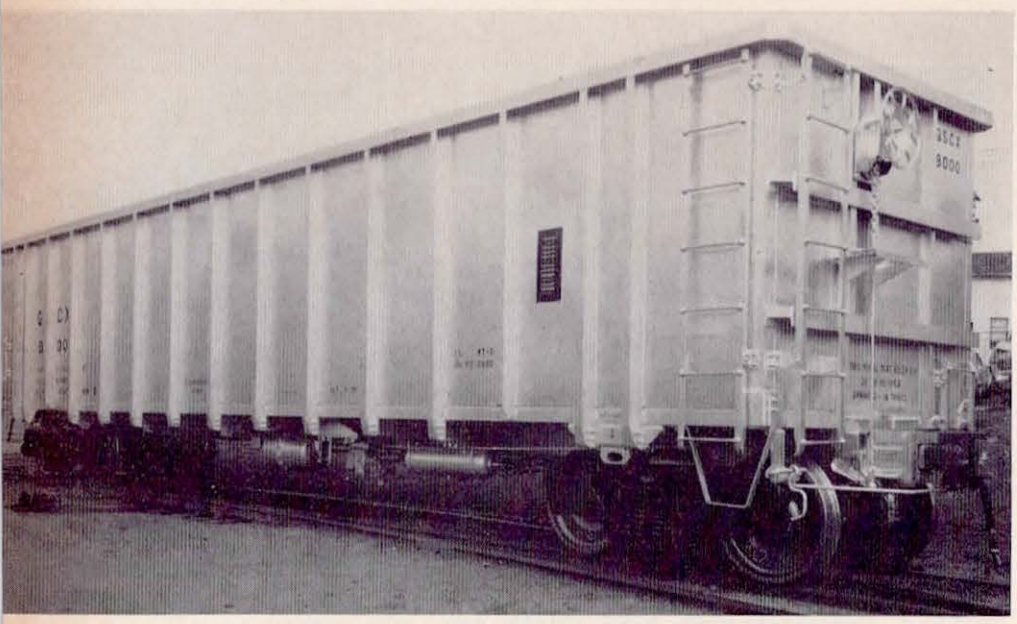
Bodies are built of aluminum extrusions, some extending the full length of the vehicles. The attendant's cab on the A car is a one-piece fiberglass assembly without seams; its windshield is high-impact glass. While the BART system uses a 5½-foot track gage, the 10½-foot width of the carbody is not appreciably greater than many recent passenger cars. Performance requirements include acceleration from standstill to 50 mph in 20 seconds and deceleration from the 80 mph top speed to a normal station stop in 27 seconds.

Many technical facets of the BART cars were finalized during a $10 million development program which started in 1965 on the Diablo Test Track in Concord, Cal. Meanwhile industrial designers were firming up vehicle styling and configuration.

Passenger comfort has come in for much attention. The foam-padded seats are cantilevered from the car sides to eliminate pedestals and increase legroom while simplifying maintenance. Temperature and humidity are controlled by a multi-zone air conditioning system. The suspension involves four air springs per truck.

Rohr has 30 years' experience in aerospace technology and also builds materials handling equipment.

NEWS



Steel Car also builds with aluminum

A utility's effort to curb rapidly rising coal costs has resulted in the lease of 300 aluminum-body gondolas cars from Greenville Steel Car. While fabrication and assembly of aluminum cars might seem a bit of an anomaly for a car-builder so named, a Greenville spokesman reports that the company is now completely tooled and trained for working metals other than steel.

The $6-million contract, which will keep aluminum cars moving off one of Greenville's production lines until next February, involves leasing of the new equipment to Cleveland Electric Illuminating, which serves all of Northeastern Ohio. All cars will have Greenville reporting marks.

CEI fuel has gone from $6.50 to $8.84 per ton in a year. It is in its attempt to control this rise that the utility has gone into railroading. CEI's fuel comes from mines in southeastern Ohio; the majority of the new 108-ton gondolas will be used in two 119-car unit trains that will cycle regularly over Penn Central. "This allows for lower freight rates and long-term contracts between producer, consumer and railroad which contribute to lower costs for delivered coal, the largest single operating expense of an electric utility," explains Karl H. Rudolph, CEI president. He expects that eventually Illuminating will save about 50 cents per ton—$3.5 million annually.

Cars will be "rotated" through the pair of fixed-consist trains to maximize life, allow for routine maintenance, and to serve as supply cars at the power stations. Each of the trains is to begin one of its 325-mile round trips on alternate days and will handle 13,000 tons of coal each time.

The 3850-cubic-foot car has a light weight of 47,000 pounds and an overall length of 52 ft. Greenville engineers estimate an equivalent steel car would weigh 63,000 pounds. Floors are 5/16 inch aluminum plate; sides and ends are ¼-inch plate of the same alloy. Body framing consists of aluminum extrusions. The body is a welded structure which is applied to the all-steel underframe with special bolts after a protective coating is applied between the mating surfaces to inhibit electrolytic action.

While the cars are to be unloaded in rotary dumpers, they will be separated for the operation and are not being equipped with special couplers. Since the introduction of the unit train a decade ago, Greenville has supplied coal cars to all the principals involved in such service—coal producers, railroads and utilities.

ICC, under Congressional fire, streamlines its operations

The ICC has announced a staff reorganization "to streamline and strengthen the agency's operations." And ICC also made three new top staff appointments, reaching out of the agency to fill one of them.

The simultaneous announcements seemed to reflect Commission concern at Congressional criticism. Some of the criticism has said the ICC usually promoted its top staff people from within, thus preventing a fresh outlook.

Appointed ICC managing director by Chairman George M. Stafford was Nyle M. Jackson, 56, who is now executive assistant to the assistant postmaster general for the Post Office's Bureau of Operations. The managing director post is the Commission's chief administrative office. Jackson is a former traffic manager for a small manufacturing company and a Senate administrative assistant.

Stafford also announced appointment of a new secretary to replace H. Neil Garson who resigned recently after Congressional scrutiny of his expense accounts. Named to the secretaryship was Robert L. Oswald, 36, now the ICC's liaison man with Congress.

The other staff post filled was that of chief hearing examiner. He will be Robert Bamford, 50, who for the last 10 years has been an ICC hearing examiner.

In the "streamlining" changes, the office of chief hearing examiner will henceforth report directly to the ICC chairman.

This move, said Stafford, grew out of the Commission's desire to be closely advised of developments affecting formal proceedings at the oral hearing level and Commission efforts to expedite the handling of cases.

Also, the present position of legislative counsel will be transferred to the office of the ICC chief counsel.

NARUC ponders state DOT status

Thirteen states now have their own departments of transportation—and the National Association of Regulatory Utility Commissioners is considering what kind of membership invitation, if any, it should extend to these departments. NARUC says the state utility commissioners, "who have traditionally regulated transportation industries, have grown concerned about their relationship with the newly created DOTs." Recommendations of a special committee will be heard at NARUC's annual convention in Las Vegas, Nov. 16-19.

DOTs now exist in California, Connecticut, Delaware, Florida, Hawaii, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island and Wisconsin. Their jurisdictions vary. Pennsylvania's DOT, for example, has responsibility for aeronautics, highways, mass transit, motor vehicles, ports, railroads and safety. The Delaware Department of Highways and Transportation, on the other hand, is limited to aeronautics, highway and mass transit. The other DOTs fall somewhere between these two.

States now studying the coordination of transportation functions are Arizona, Iowa, Kentucky, Maine, Michigan, Minnesota, North Carolina and Washington.

CSS&SB files for a fare boost, but . . .

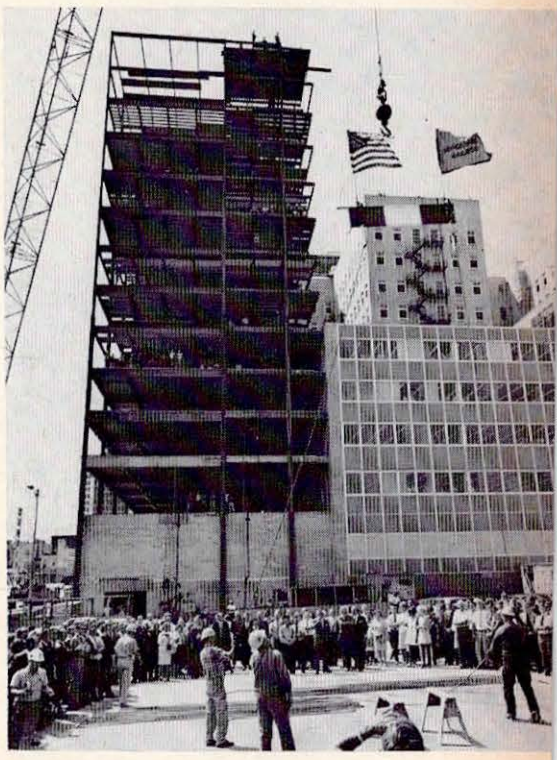
Chicago South Shore & South Bend is asking for a hefty passenger-fare increase—and at the same time giving warning that more help will be needed, since the proposed boost would cover only 1969 cost increases and not those for '70. Says President James B. McCahey, Jr.: "The South Shore is in desperate straits . . . . Unless local, county, regional, state and federal authorities use the time thus provided [by the fare hike] to organize quickly and relieve the South Shore of the financial burden of providing this passenger service, as is being done for commuters in other heavily-populated areas of the country, total loss of the service will result."

Fraternity cites AMSTED chairman

Joseph B. Lanterman, chairman and chief executive officer of AMSTED Industries, Chicago, has become the 19th person to receive the Distinguished Merit Award of Alpha Sigma Phi, national social fraternity. Lanterman was cited both as a business leader and as an active worker in charitable and welfare causes. Previous recipients have included Austin T. Cushman, former board chairman of Sears, Roebuck; Dr. Reinhold Niebuhr, the theologian; and Vincent Price, art historian and actor.

Flying Tiger gets NA board control

Flying Tiger has capped its bid for control of North American Car by placing seven directors on an expanded, 13-member North American board. Five of the seven new directors are officers of Flying Tiger; five of the six holdover directors are present or former North American officers. Flying Tiger's bid met stiff resistance from North American, which fought back by urging shareholders not to tender their stock and by filing actions before the Civil Aeronautics Board and in U.S. District Court. Previous holdings and stock tendered, however, gave Flying Tiger about 45% of North American's outstanding shares, and the change in board makeup followed. At the same time, North American decided to withdraw its petition to the CAB and to dismiss with prejudice its pending court suit.



UP moving ahead with GHQ addition

A crane set the last steel superstructure beam in place—and Union Pacific was moving ahead on schedule with a $5.5-million addition to its headquarters building in Omaha (RA, March 9, p. 70). When the 12-story structure is completed early next year, UP's data-processing center will be moved into the lower three floors. The remainder of the building will be devoted to general office space.

BN headquarters: Target for a bomber

There was no rhyme or reason to it —but at about 7:35 a.m. on Sept. 1, an explosion rocked an area near a freight elevator and loading dock at Burlington Northern's headquarters building in St. Paul. Two persons were injured in the blast, believed caused by a dynamite bomb. Two other explosions and an apparent attempted bank robbery were reported in St. Paul at about the same time.

NEWS

Monon gets "REALCO 20,000"

With delivery of this trailer to the Monon, the world's largest piggyback fleet — REALCO's National Railroad Trailer Pool—hit the 20,000-trailer mark. No. 20,000 was built by Dorsey Trailers at Elba, Ala. On hand for the ceremonies were (left to right) R. J. Terranova, Monon's director of TOFC; Robert E. Budorick, president of REALCO; George Collier, president of Dorsey Trailers; and Walter Broghamer, executive account manager for Dorsey.

Per diem up, demurrage unchanged

Higher demurrage charges were approved and then disapproved by the ICC last month, while per diem charges were increased as scheduled by the Commission.

Effective Sept. 1, the ICC schedule of new and higher basic per diem and incentive per diem rates went into effect, except on the Seaboard Coast Line and the Florida East Coast Railroad, which due to court restraining orders will neither pay nor collect incentive per diem. The two exempt roads may have to settle later, pending settlement of their court suit, however.

The new schedules were scheduled to take effect June 1, but Congressional pressure caused ICC to delay their promulgation until this month. Congress wrestled with the freight car shortage all summer, accordingly, and proposed solutions ranging from a penalty charge of $100 a day to giving the Defense Department $120 million to maintain a 10,000 car fleet. Neither proposal got anywhere.

Per diem charges at present range from $2.16 to $12.18 per car, per day, based on the type of freight car.

The new basic per diem formula of the ICC varies with the use made of cars and is measured by both the length of time cars are held and the miles they travel. The new basic per diem charges range from 63 cents to $10.22 per car per day for time and 1.3 cents to 4.5 cents per day for mileage. A penalty charge, ranging from four cents to $12.98 per day is applied from Sept. 1 to Feb. 28 as an incentive to move cars during the peak shipping season.

Rails thus will pay higher per diem charges—which would have cost the industry last year $923 million—without recouping the difference, as they had hoped, from higher demurrage charges to shippers for holding cars longer than two days.

At first it seemed the new ICC per diem charges and rail-proposed demurrage charges might go into effect simultaneously. This was after the ICC Suspension Board voted Aug. 27 not to block higher demurrage charges. But then, on Aug. 31 a three-commissioner board overruled the lower board and ordered the demurrage rates suspended for seven months while ICC conducted an investigation.

Shippers, who had vociferously complained at the higher demurrage charges, rejoiced.

"The key question about demurrage is, 'how much of it is avoidable?' ", said NIT League Executive Vice President Lester Dorr.

"Cars are delayed because rails bunch them," he maintained. "All of a sudden shippers get a bunch of 30 cars instead of a steady stream which had been expected."

Shippers now pay demurrage charges ranging from $5 to $135 per day from the third to the 15th day they hold a car.

In 1969, rails collected $97 million in such charges. The higher charges proposed by rails and now under investigation by the ICC range from $10 to $290 a day.

Rails contend that the present charges date from 1964 and are not high enough to make shippers unload quickly and get cars on the move.

Bailey stays on, Kenefick promoted

Directors of the Union Pacific Railroad Co. have extended the term of Edd H. Bailey as president beyond his scheduled retirement date of Sept. 30. At the same time, effective Sept. 1, they elected John C. Kenefick, executive vice president, as chief executive officer of the transportation division.

Bailey became chief executive officer of the transportation division on Jan. 1, 1964, and president one year later.

Magnuson criticizes car-service cuts

The AAR's cost-cutting elimination of car service agents has prompted Sen. Warren G. Magnuson to send a critical letter to AAR President Thomas M. Goodfellow.

"Of the functions performed by the AAR none is, in my opinion, more important to shippers and the public than the efforts of these agents to improve car distribution," wrote Magnuson to Goodfellow the last week of August.

AAR, having cut its budget 27% because of the loss of Penn Central financial support and the straightened position of the industry in general, has laid off approximately 70 car service agents. All eight of the AAR car service district offices have reduced their staffs, cutting back to two men and a clerk-steno position.

AAR intends to rely more on its TRAIN (TeleRail Automated Information Network), now operating at about 70% of capacity, and on the efforts of railroads themselves to make up the lost personnel.

Cost-cutter: MATE locomotive concept

General Electric, in cooperation with Seaboard Coast Line, has developed a new locomotive concept, the MATE, which is a four-motor unit without prime mover. It is to be used with high-horsepower locomotives when they are assigned to heavy-tonnage, low-speed freight trains. MATE actually represents the extension to road service of a concept which has been used with hump locomotives to enhance their low-speed capabilities.

SCL Chairman W. Thomas Rice explains: "Our people, together with those of GE, have brought their technological resources to bear on matching MATE (motors for additional tractive effort) with a high-performance four-axle locomotive, such as our new U36B (RA, Aug. 31, p. 46). By equipping SCL with increased tractive effort capabilities, the ten MATEs which we have ordered from GE for $956,000 will increase our locomotive utilization and efficiency, thus helping to lower our operating and maintenance expenses."

The electrical energy for a MATE is supplied by its mating diesel-electric locomotive. Under the MATE platform are a pair of two-axle trucks with four conventional GE traction motors and gearing to match the locomotive to which it is connected. The MATE also has a traction-motor ventilating system, sufficient air brake equipment for its m-u operation, wheelslip controls, lights, safety appliances and ballast to make it weigh the same as the mated locomotive. On the diesel unit some added equipment is necessary including extra contactors, an added step of transition, larger auxiliary generator and cables to the MATE. As the speed of the combined units picks up, current to the MATE motors is gradually decreased. At 29 mph (in the case of SCL) the full available horsepower is utilized only by the locomotive's four traction motors.

Fares rise 10% in East and West; commuter fares also up

Railroad passenger fares in the East and West rose 10% on Sept. 1, after the ICC Suspension Board on Aug. 26 refused to heed the last minute protests of the Department of Defense and six other groups, including the New York State Public Service Commission.

The hike, which does not apply to commuter fares, is estimated to provide about $20 million a year in additional revenues. This estimate is based on the fact that passenger revenues for Eastern and Western roads totaled $234.3 million in 1969, and that passenger traffic this year is down about 10%.

A one way coach ticket from New York to Chicago would rise from $46.50 to $51.25, and Washington-New York fares will be: $13 coach, $15.75 Metroliner coach, and $23.40 Metroliner first class.

The increase includes a provision whereby rails may round off fares to the nearest 25 cents.

The ICC earlier this year granted a 5% passenger fare increase to 14 railroads, and most railroads in 1969 increased fares. They were not general increases but were filed by individual lines and varied between 5 and 10%.

Meanwhile, state authorities approved two Eastern commuter fare increases. The Penn Central received approval of a 20% increase in fares in the Philadelphia area from the Pennsylvania Public Utility Commission. The increase, also effective Sept. 1, would give the Penn Central an additional $2 million in passenger fares. Also, a 10% fare increase became effective the same day for some 14,000 Boston commuters on the Penn Central and the Boston & Maine. The increase was granted by the Massachusetts Bay Transportation Authority.

Santa Fe offers one-class fares

Coach passengers pay more and sleeping-car passengers pay less, in a restructuring of Santa Fe's fare setup. The road joined other western lines in increasing coach fares by 10%; at the same time, it instituted a one-class system in which sleeping-car passengers will pay the coach fare plus a space charge, which works out to a cut of about 10% in sleeping-car total charges. One example: Chicago-Los Angeles one-way coach fare was $74.30, sleeping-car fare $94.33 plus space charge. Now, the coach fare is $81.75 and the sleeping-car fare is the same, plus space charge.

NEWS

Lines on Labor

GUS WELTY

WITH EVERYTHING UP IN THE AIR . . .

There was a strong temptation, this time around, to dig out the M-300 reports and write something erudite about employment levels and wages and so forth. At this point in rail management/labor relations, just about everything else that's important seems to be in a state of suspended animation, or animated suspension if you prefer. As September dawned, negotiators were still working toward settlement of the fireman-manning issue. Strike calls had been issued for Sept. 10 in wage disputes involving, principally, the United Transportation Union, Brotherhood of Railway and Airline Clerks and Brotherhood of Maintenance of Way Employes. The National Mediation Board was preparing to count ballots in a major representation election, UTU vs the Brotherhood of Locomotive Engineers on the Southern system. Labor had had its say, in testimony in Washington, on the problems of the railroads. Observers and participants on both sides were pondering the possibilities of revamping collective bargaining procedures in the industry. As for hard, cold facts about management/labor—well, the most recent mid-month count of employees stood at 583,778, which was down a bit from the year-ago figure and up a bit from the month-earlier figure.

. . . NOT EVEN THE BIG CHIEF CAN LAND SAFELY

For a moment, it seemed that the venerable George Meany, the 76-year-old president of the AFL/CIO, might provide the spark for a think-piece, if not for a fact-piece. Remarks attributed to Meany indicated that (1) he doubts the effectiveness of the strike as a settler-of-issues, particularly in well-established industries with well-established unions, and (2) he may be leaning toward arbitration as a means of disposing of issues that defy settlement through collective bargaining. But Meany's "spark" was quickly doused. A union insider—from one of the major unions—had only an observation that recalled a comment made by Railway Age's now-retired Washington editor, Walter Taft, during the Eisenhower years: "You understand, of course," Walter said, "that Mr. Eisenhower doesn't speak for the Administration."

BUT THERE'S ONE THING THAT CAN BE SAID, HOPEFULLY

So, when there are few if any facts to stand behind and when there are few if any thoughtful pronouncements that mean much, there's little alternative but to go into the forecasting business. And here's the forecast on the issue described by an emergency board as "the most volatile," the fireman-manning issue: (1) It will be settled; (2) it will be settled through bargaining; (3) it will be settled soon; and (4) it will be settled on terms both sides can live with. In terms of a confidence-factor, rank the forecasts A, B+, A and B+.

Crossing safety: Top-priority item

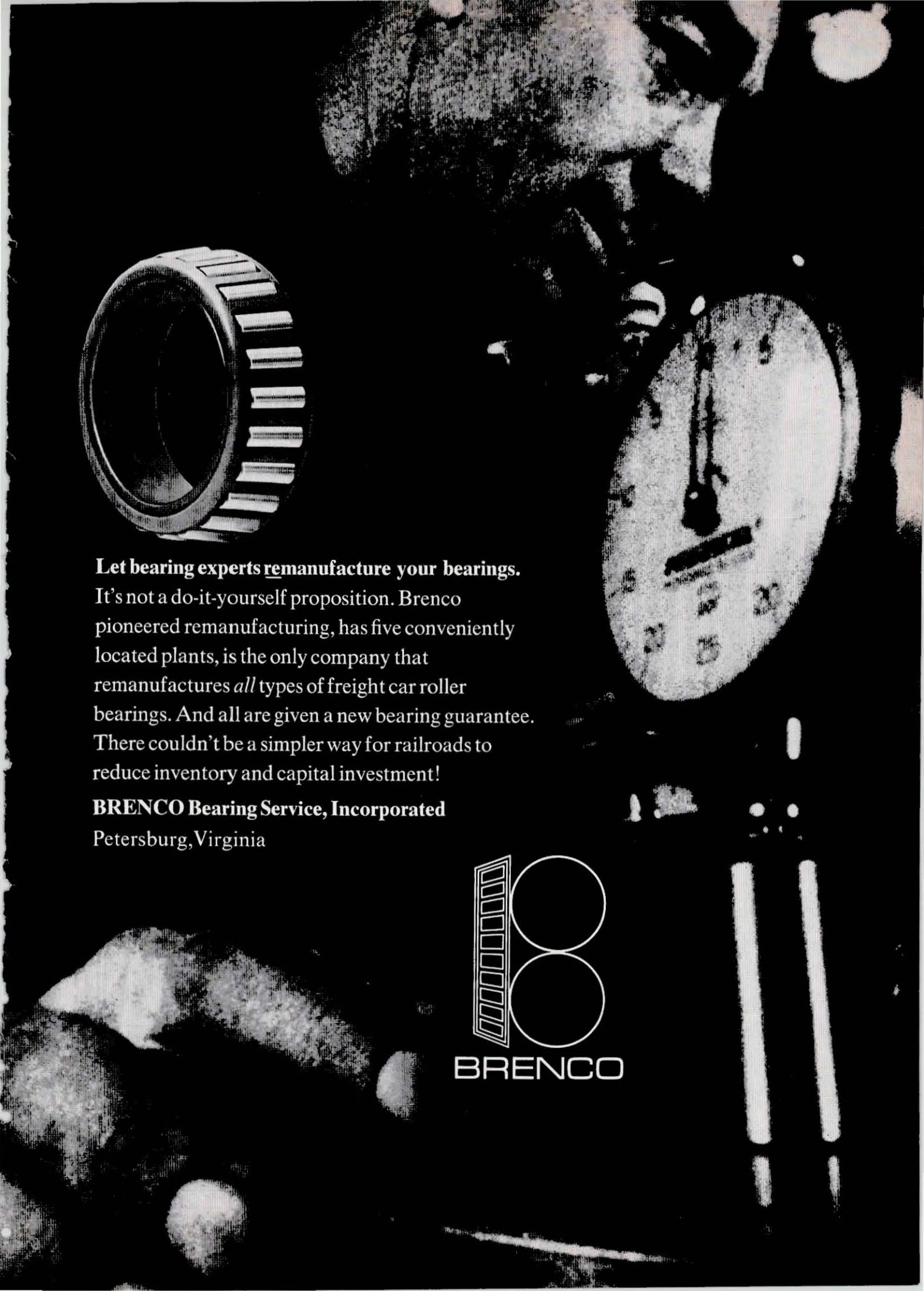
Rail/highway grade-crossing safety is a perennial problem—but Frisco President Richard C. Grayson has a few ideas on how safety can be improved and the problem reduced. Part of his proposal involves money, and part centers on better education and training of the driving public.

Grayson points out that ten states have set up crossing-protection funds and that several other states share in maintenance costs. But, he says, rather than a fragmented approach what's needed is "a national approach, one which will coordinate and unify local and state efforts and set up uniform standards."

As for the money aspect, Frisco's president agrees that use of federal funds has been of help: "But only about 20% of the total number of grade crossings are on the federal-aid highway system. The remaining 80% are not in any way eligible for federal funds."

Complicating the problem, he adds, is the fact that even the available funds are not being fully used: "More than $530 million in federal highway trust funds may be used annually on projects for which the federal contribution can range from 90% to 100%. However, it is not required that these sums be spent. Between 1963 and 1967, less than $85 million per year was actually used from this source for grade-crossing improvements. Moreover, only about $77 million per year in other federal monies, available on a matching-fund basis for federal-state projects, was used. Taking these sources together, the government spent less than one-third of the permissible expenditures that could have been made with almost total federal support. Congress should require states to spend the full 10% of federal highway trust funds for grade-crossing projects. And it should also remove restrictions which confine these funds to federal-aid highways."

Speaking at a national conference on grade-crossing safety at Georgia Tech, Grayson also urged a step-up in driver-education programs. "Driver-education courses in high school today," he said, "are as basic to modern living as home economics."



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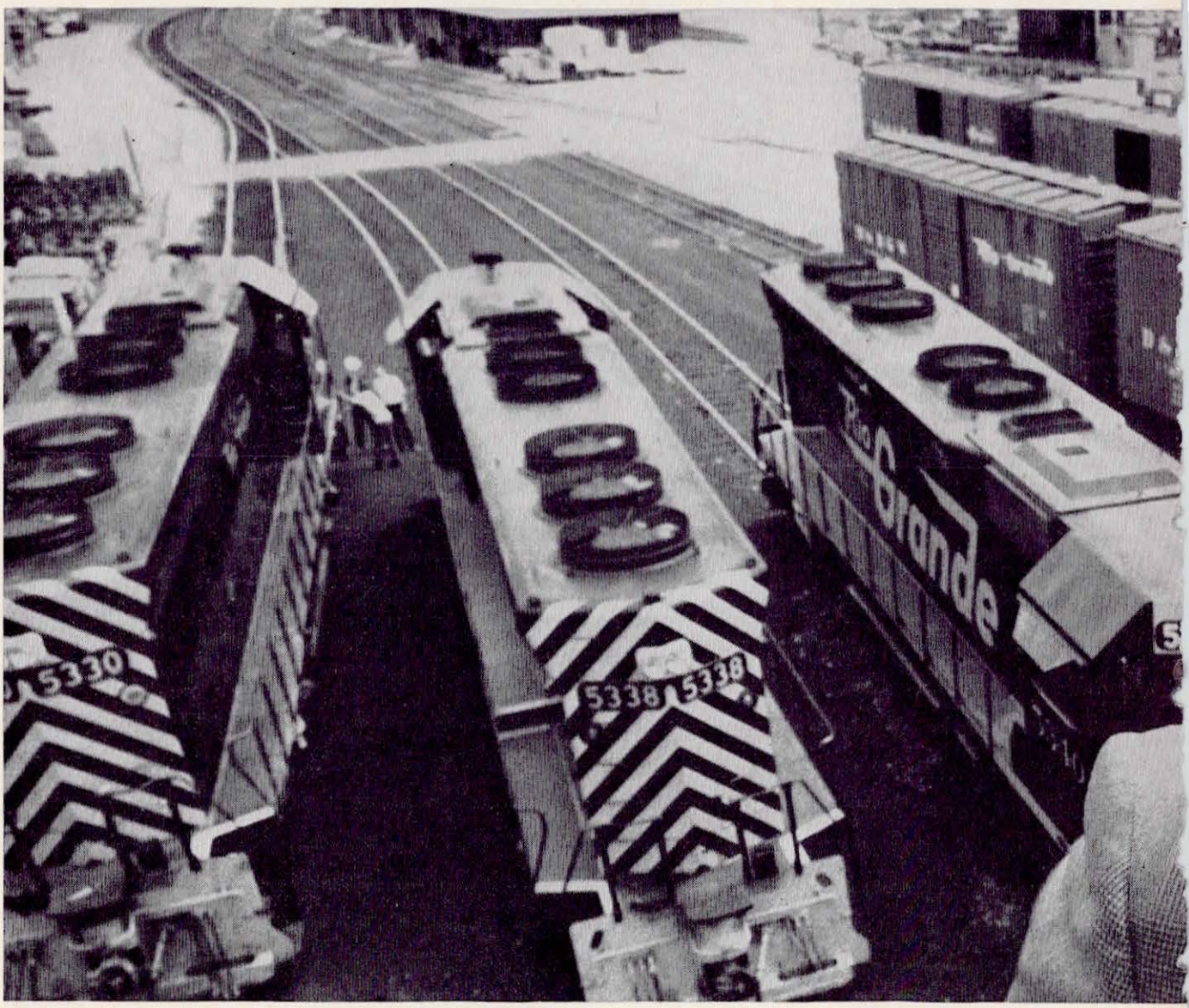

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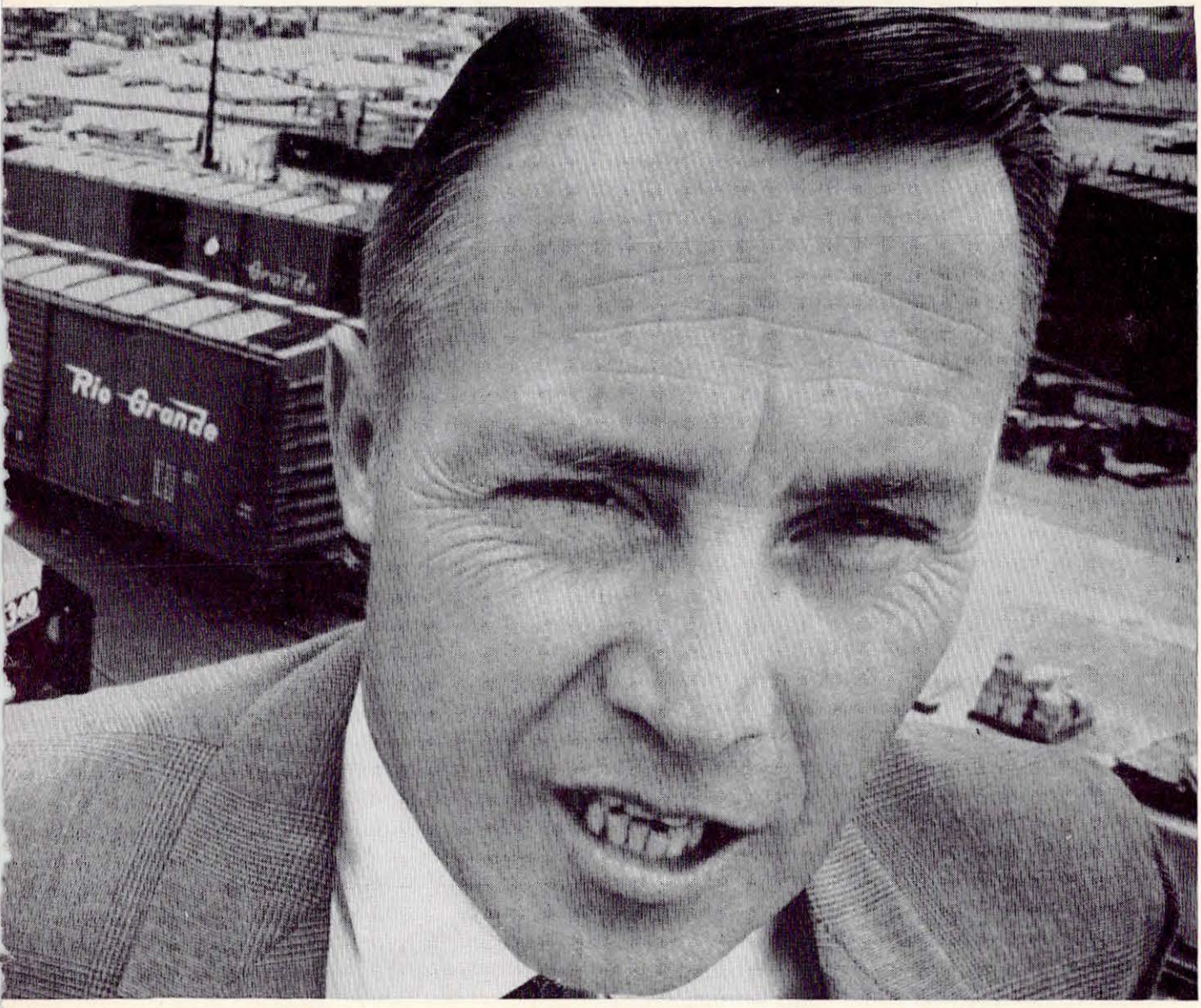

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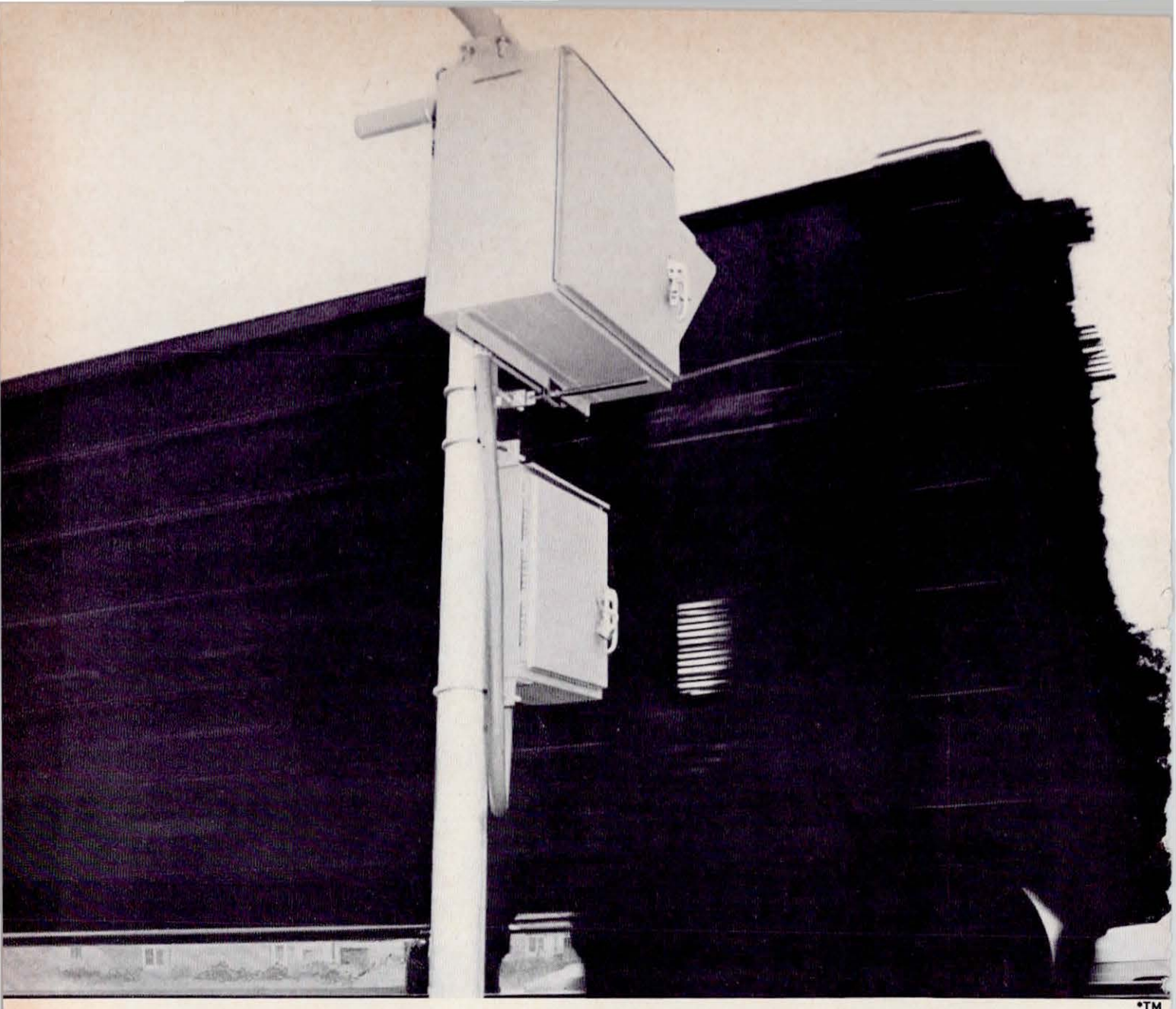

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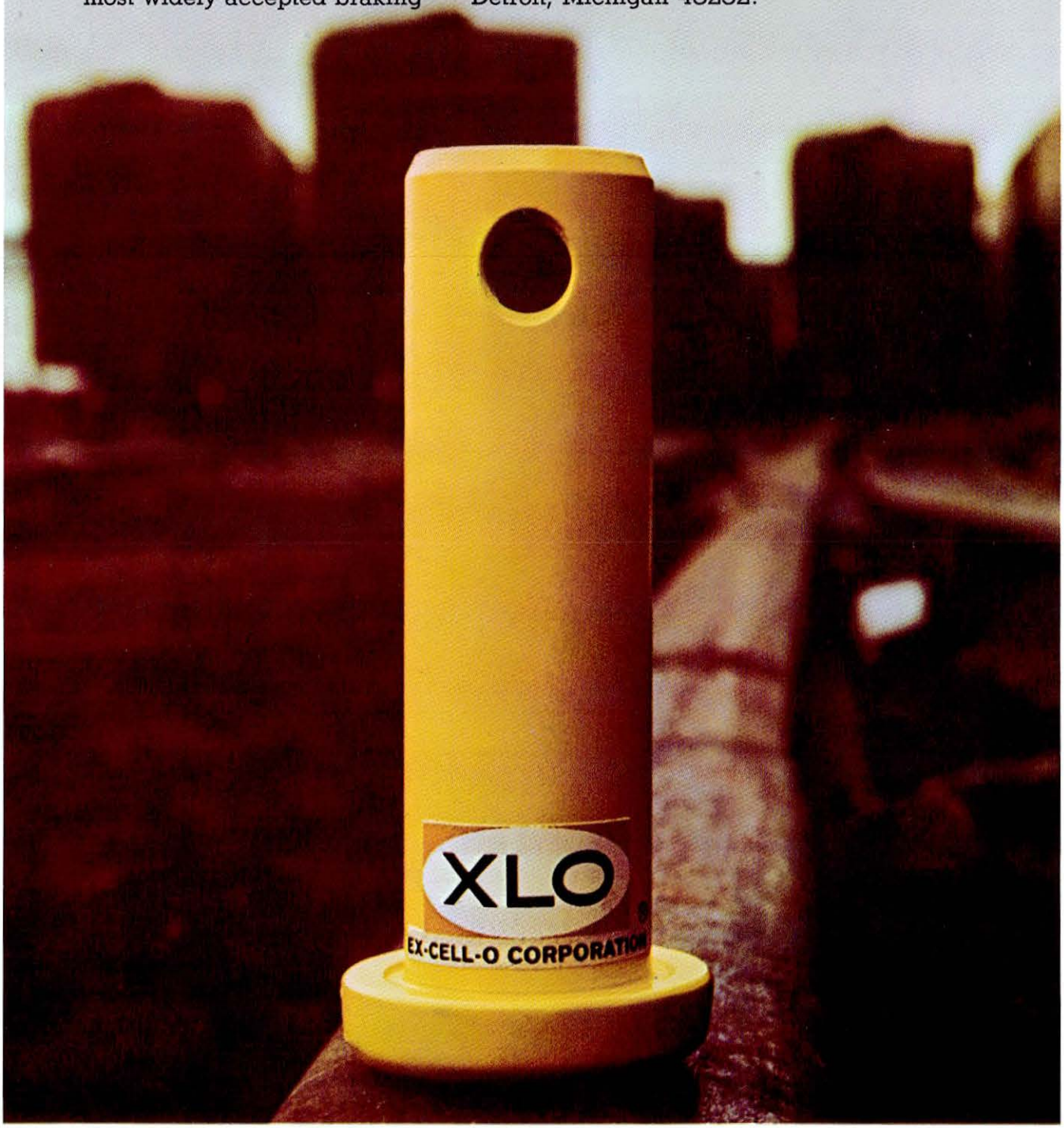

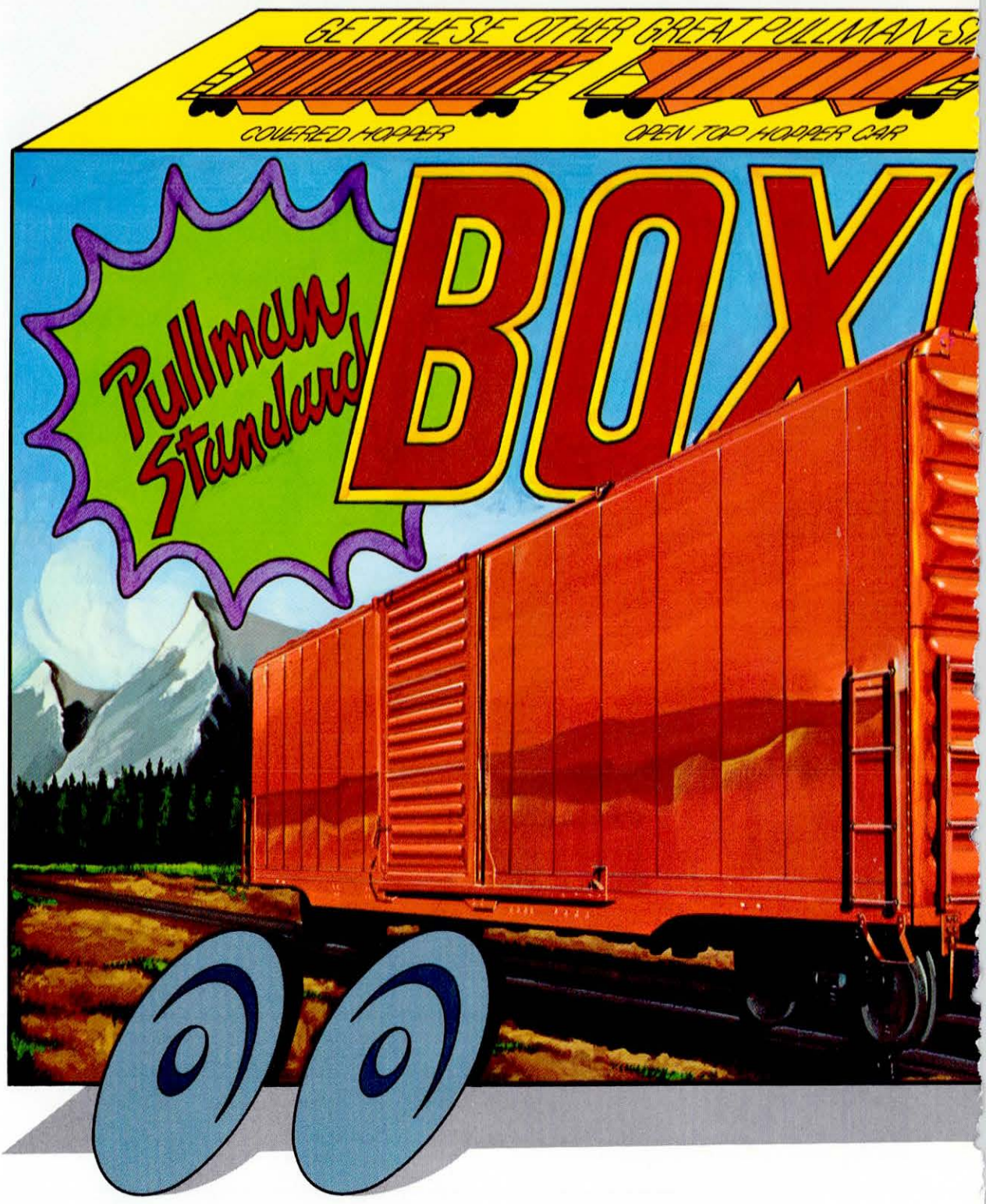

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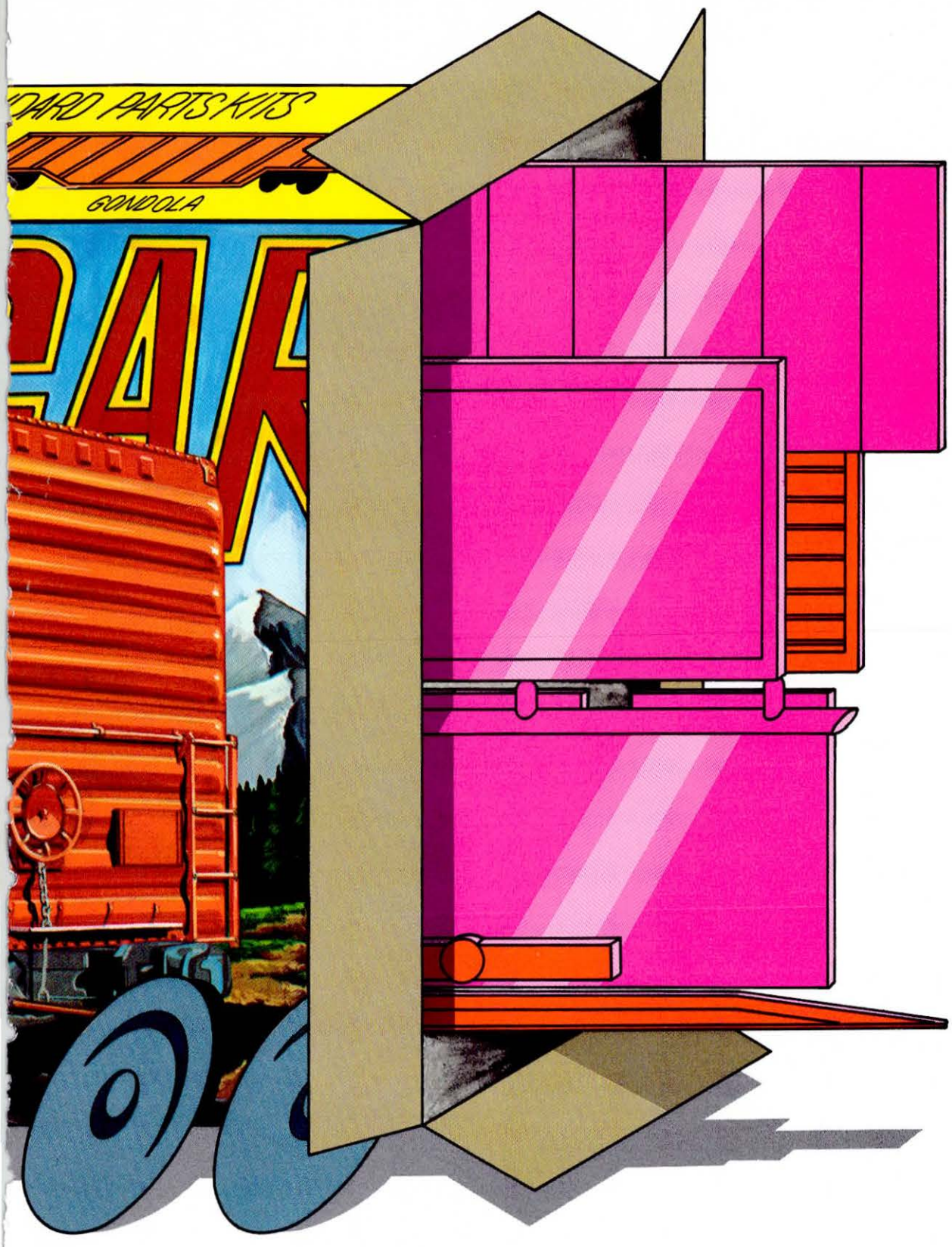

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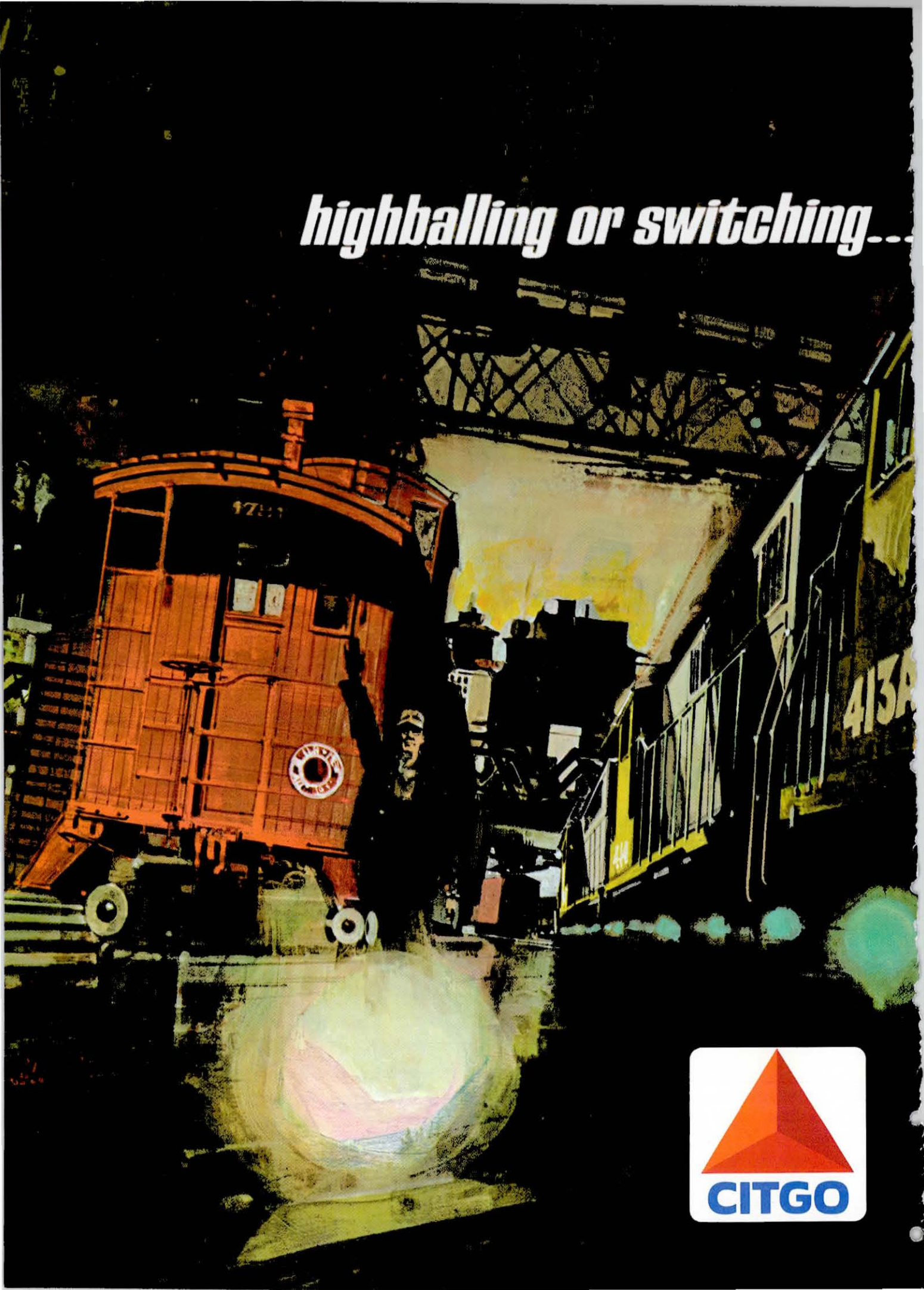
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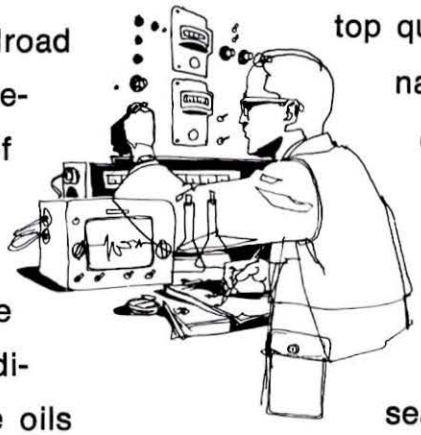

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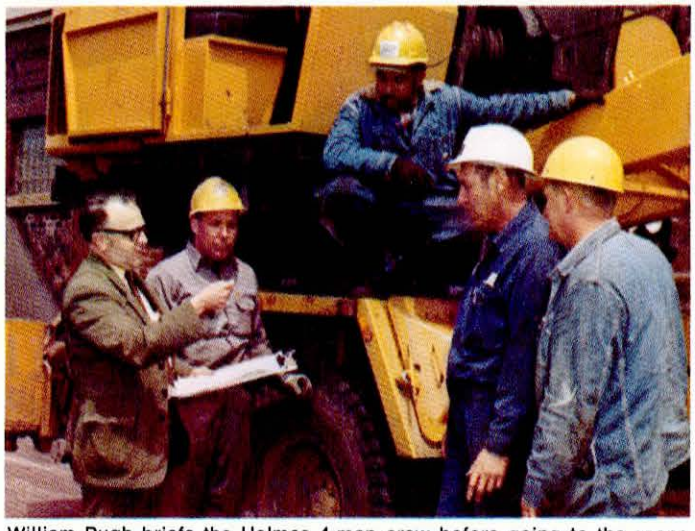

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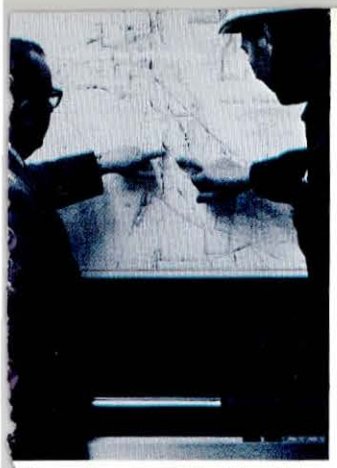

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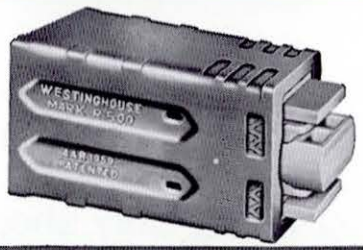
SMOOTH CONTACTS

MARK 50

MARK R-500



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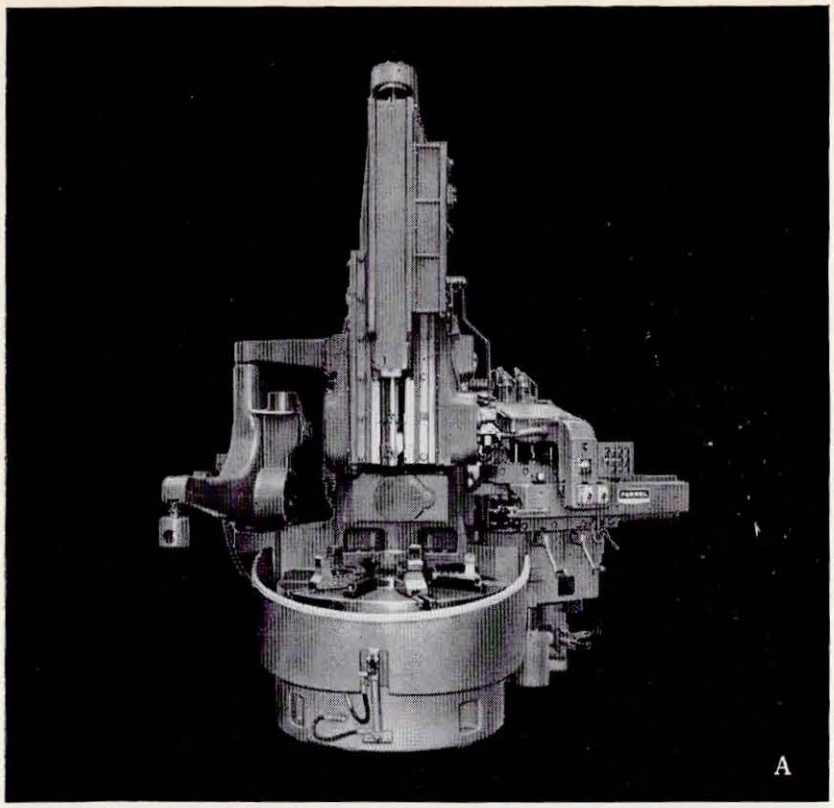

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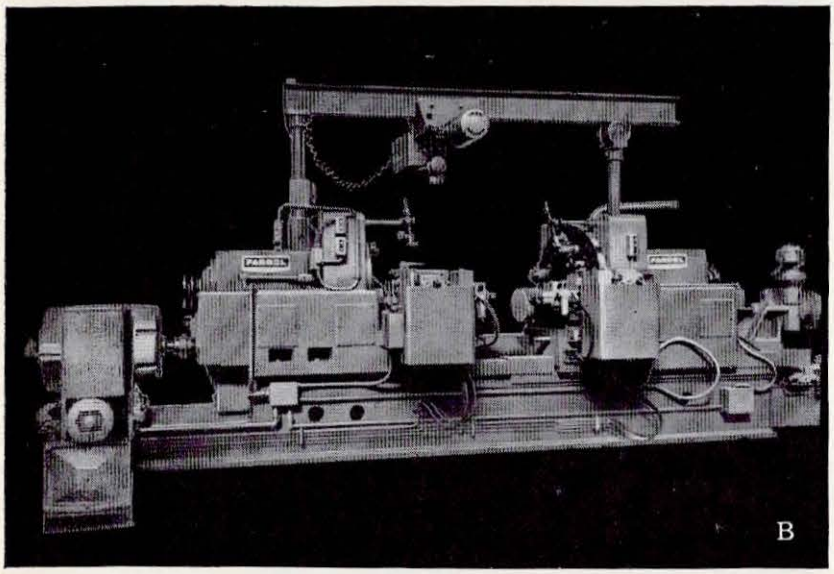

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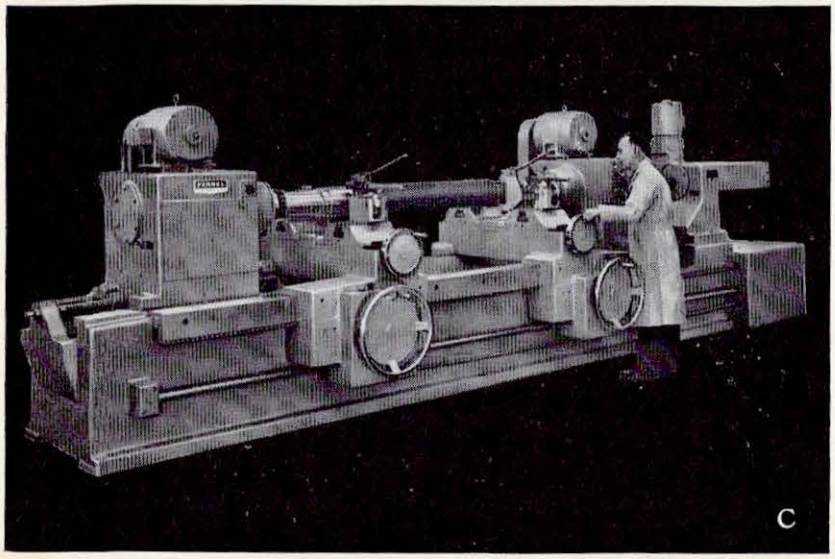

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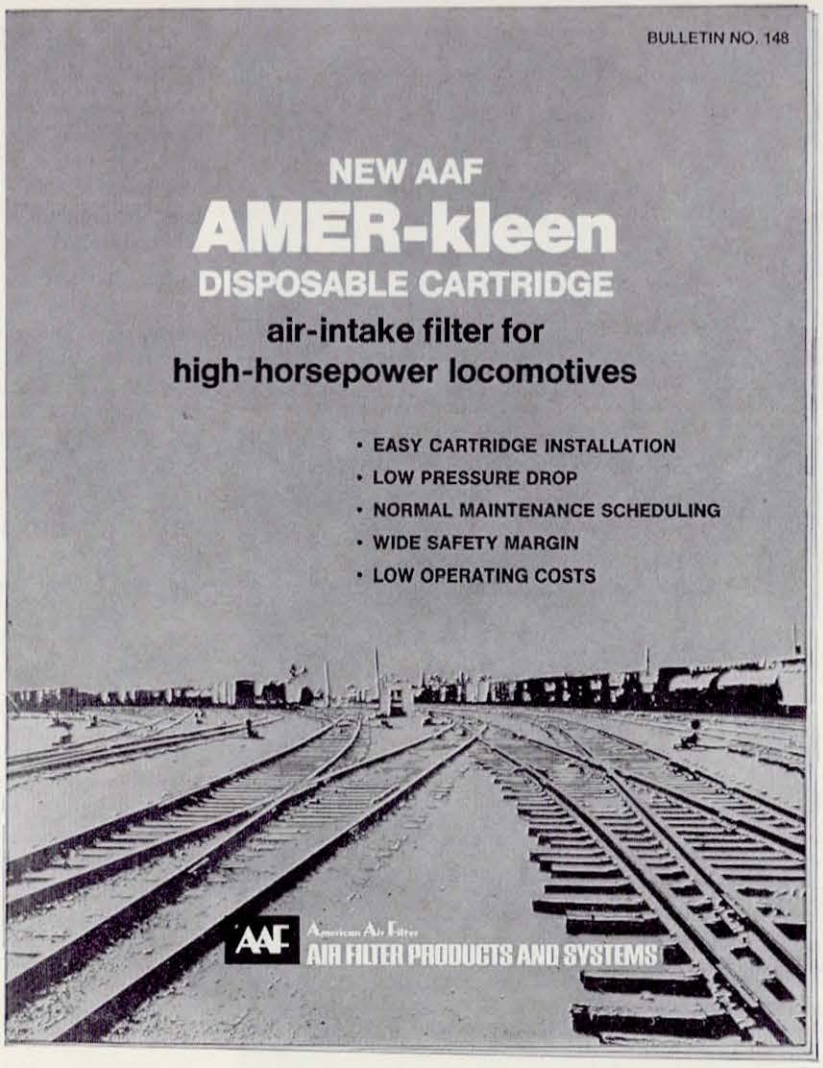

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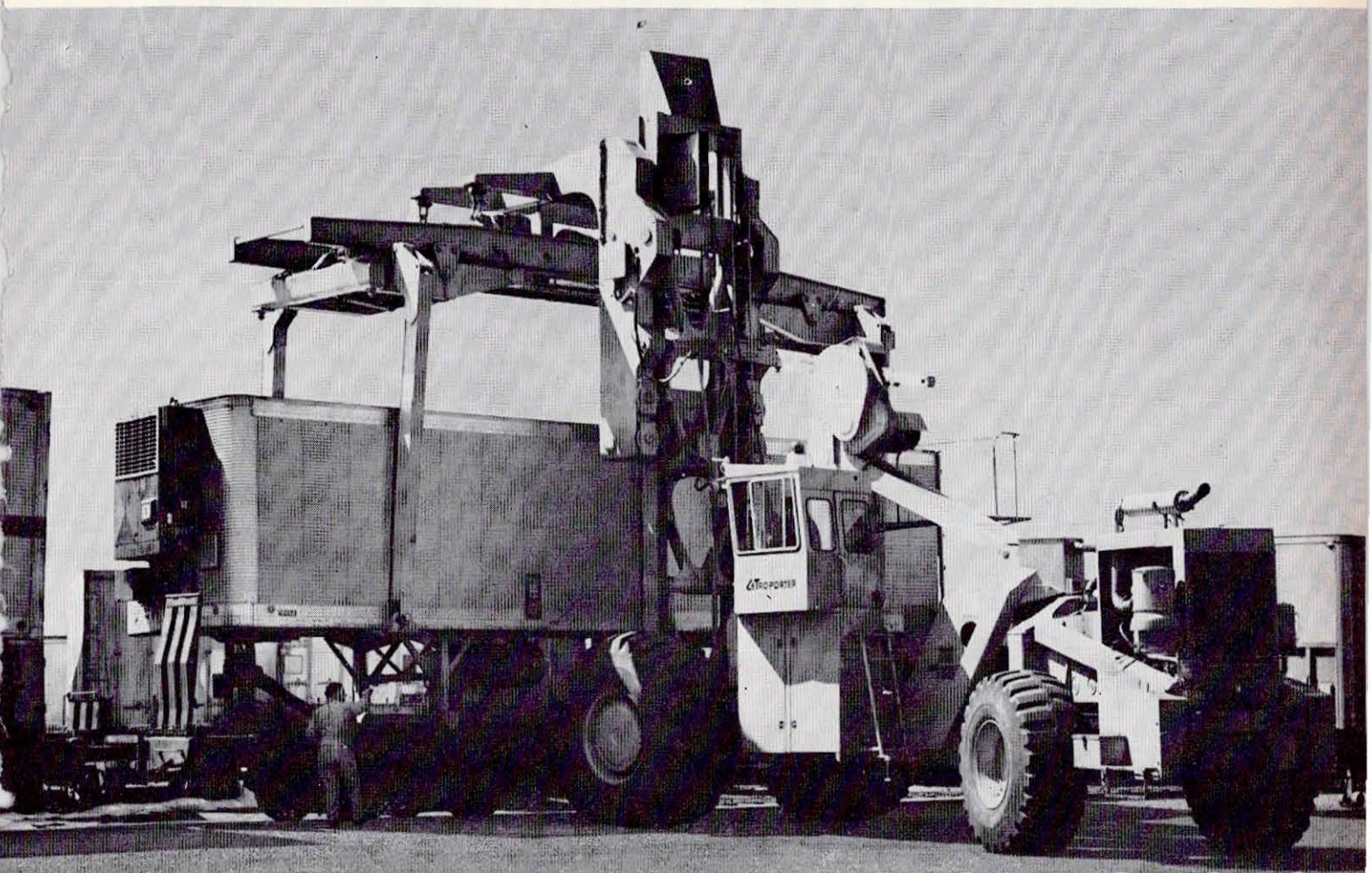

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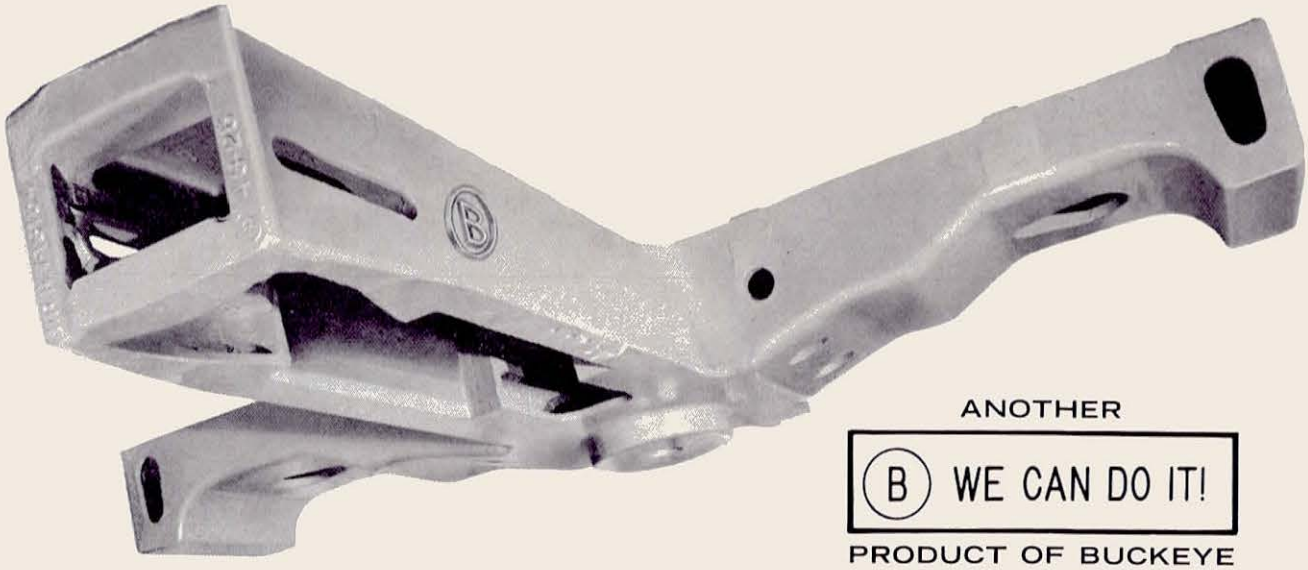

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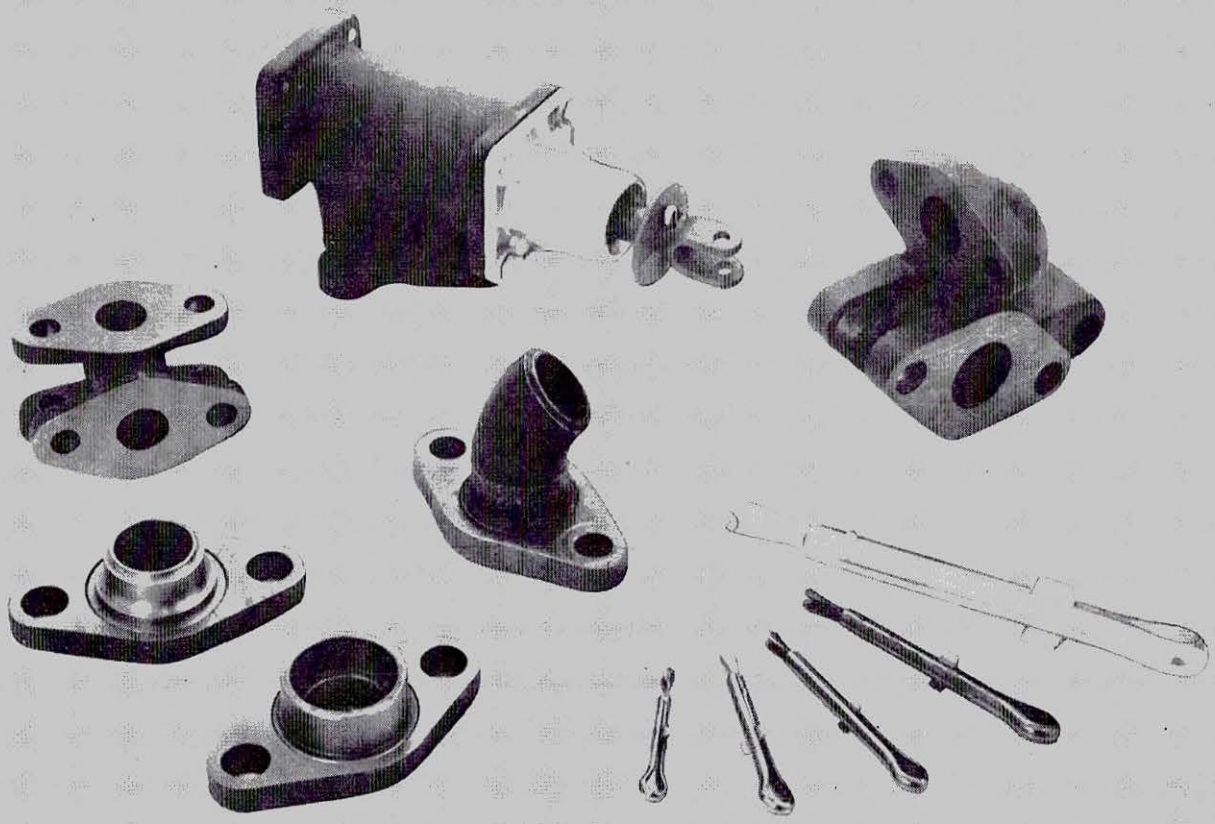

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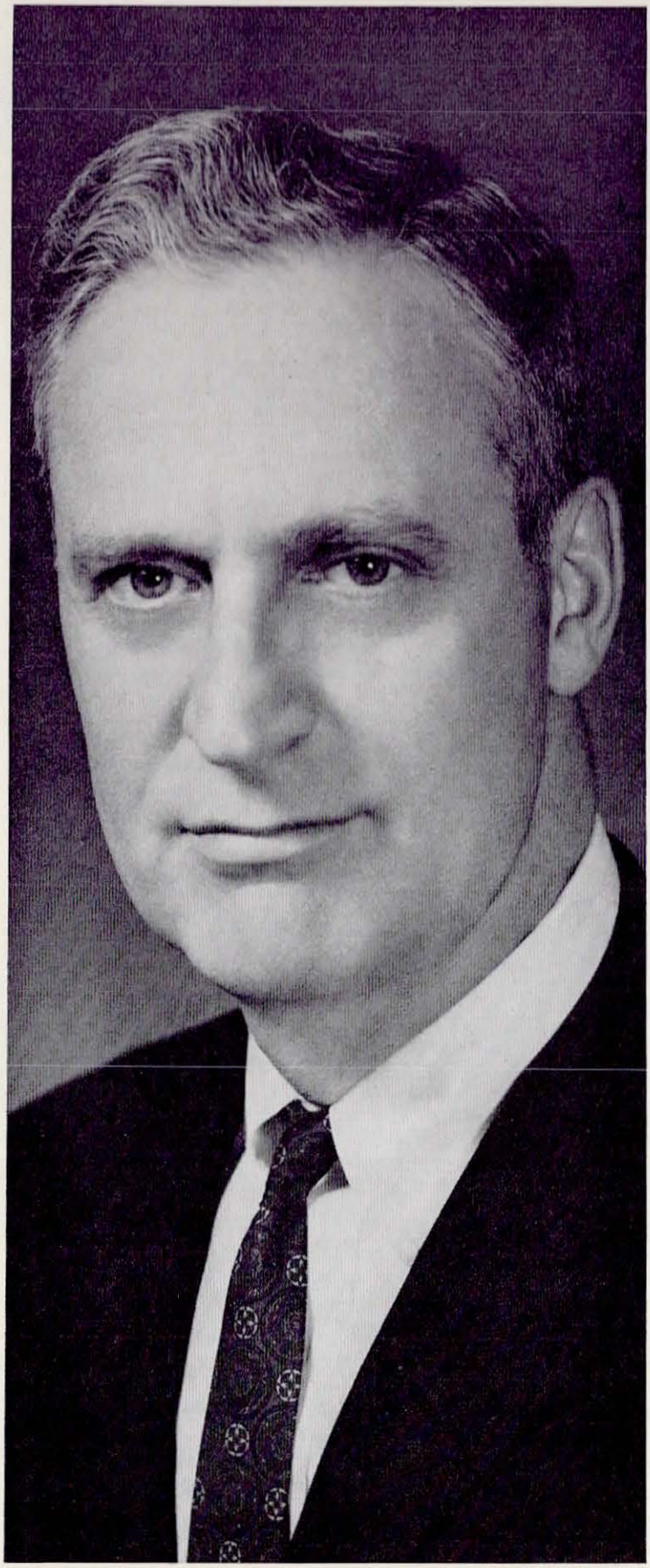

RAILWAY AGE AS SEEN THROUGH THE EYES OF RAILROAD PRESIDENTS–NO. 4

Railway Age is an answer to the railroader's need to keep currently posted on many important developments within and related to our industry.

It is given wide distribution on the P&LE and our people find it to be a "Class I" source of timely, reliable information.

H.G. Allyn, Jr.
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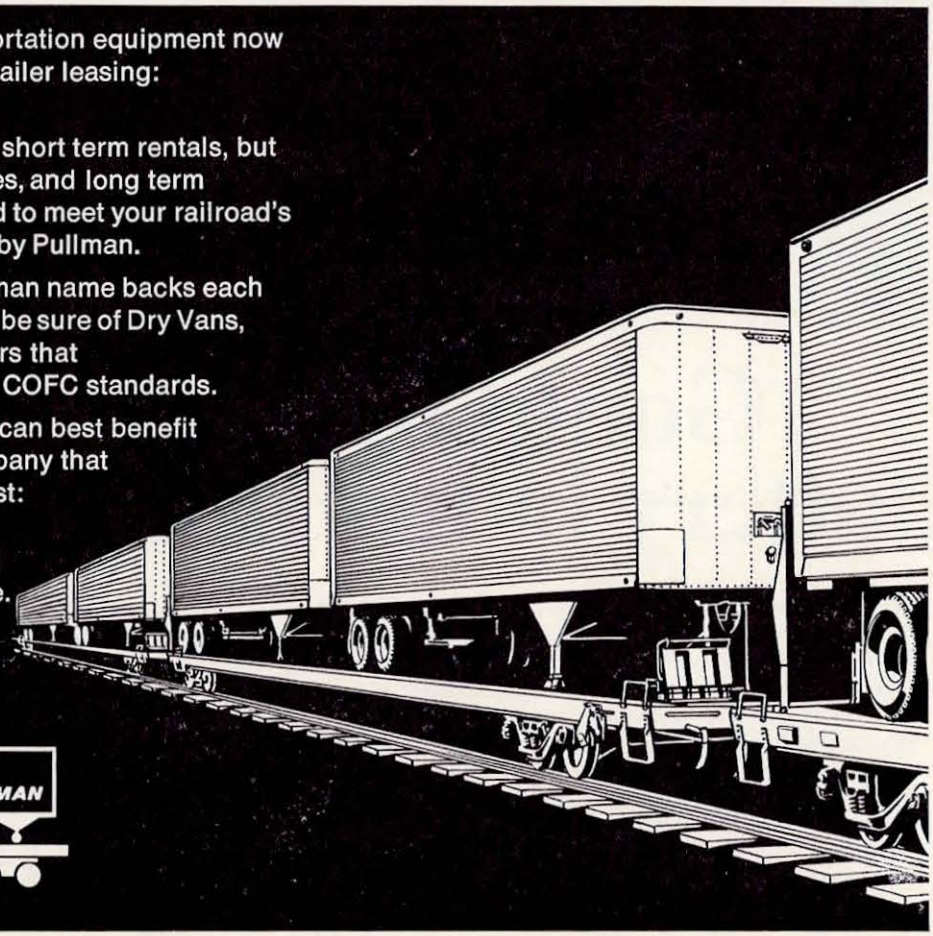

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When we deliver your Timken® "AP" bearings, we don't just hand you a bearing that's been proven over millions of miles.

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Then we give your men pocket-size instruction books, so they have an instant replay of everything they've seen.

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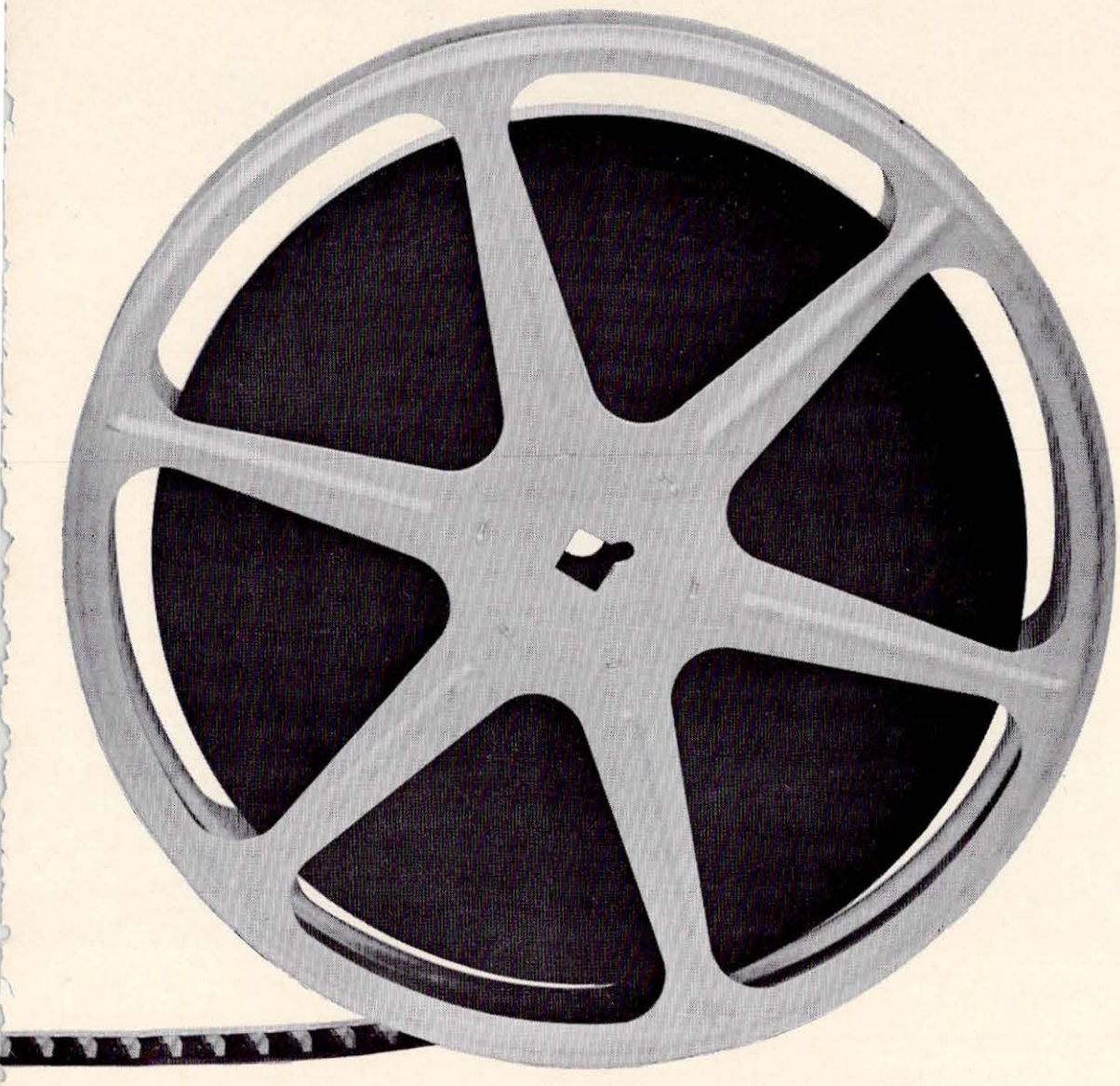

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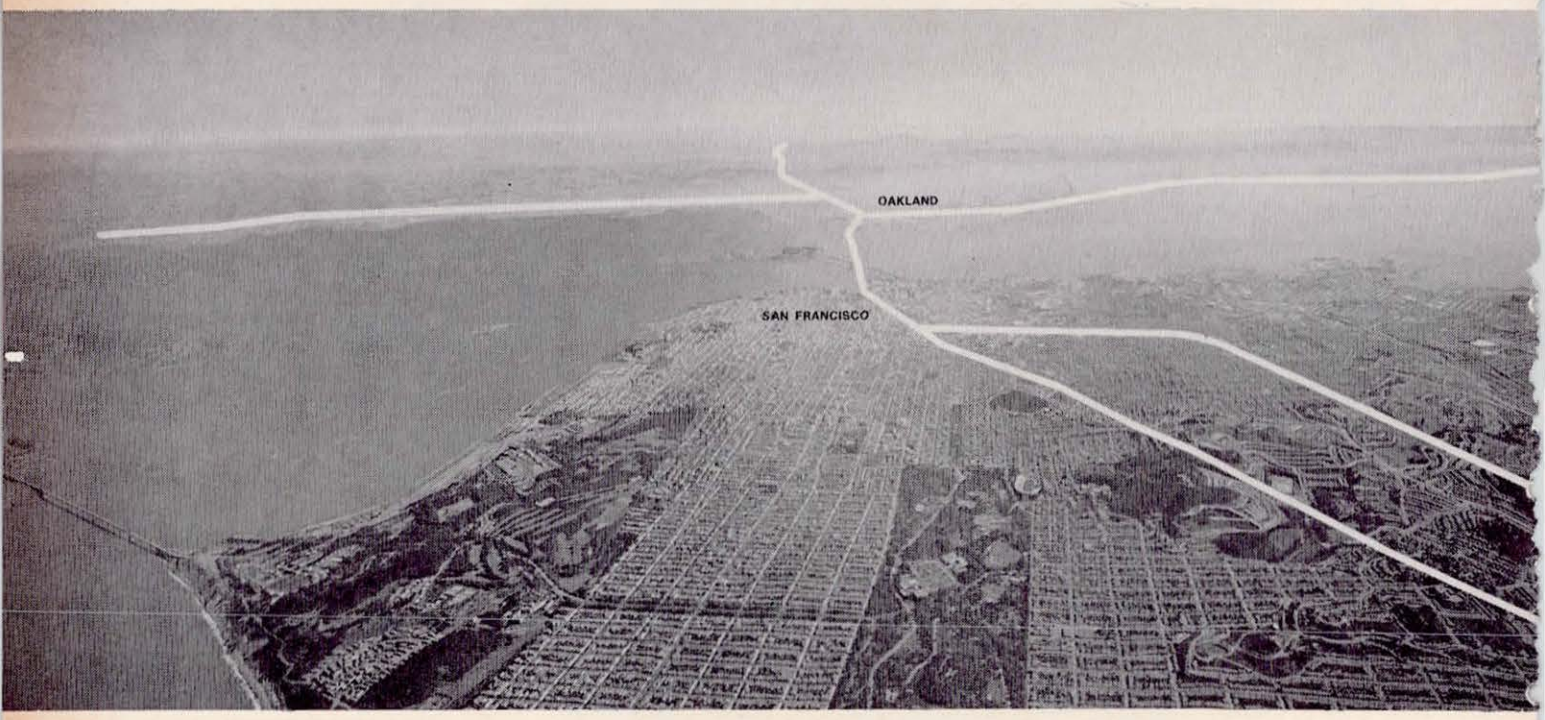
Westinghouse will drive and control new 80-mph trains



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More than 100,000 people an hour will move on the world's most advanced rapid transit trains. Westinghouse will supply total drive systems and air conditioning for the trains. Solid-state equipment will ensure smooth operation.

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It was developed to meet the needs of the railroads for an economical medium-production tamper. With only one operator, the machines can tamp, lift, line, spot and joint peak under almost all track conditions.

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Proven. Panel track has been used for decades both here and abroad. It is easily maintained due to the uniformity and quality of its production.

Complete Package Trackage. Foster offers complete one stop shopping for all your track requirements, new and relay rail, trackwork, crane rail, accessories, tools, etc.

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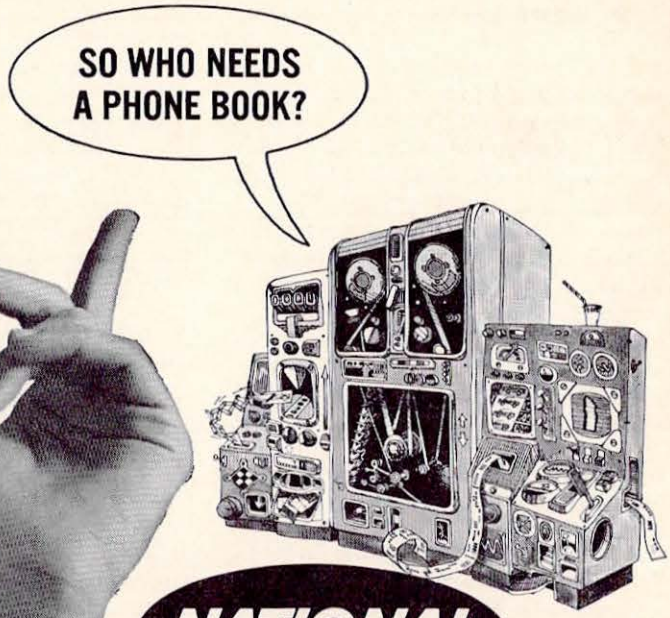

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MANAGEMENT CLOSE-UP: ILLINOIS CENTRAL

Diversify–and build a better

Illinois Central today isn't much like IC of five years ago. Then, diversification was just beginning. Massive railroad improvement programs were just getting under way. Internal restructuring was largely in the future.

In a comparatively short time, Illinois Central Industries has taken shape, as a broadly diversified company with holdings in transportation, manufacturing, consumer goods, real estate. IC Railroad has invested tens of millions of dollars in equipment and property betterments. Management is a free-wheeling blend of home-grown and imported talent.

What do these changes mean, in the current atmosphere of railroad and conglomerate operations? Railway Age editors put the question to the men best able to answer—William B. Johnson, chairman and president of ICI and chairman and chief executive officer of IC; Alan S. Boyd, first Secretary of Transportation and IC's president since early 1969; and the men in charge of key railroad departments. This is their view of today and tomorrow.

Q. Mr. Johnson as a diversified company that seems to be succeeding how does ICI assess the problems conglomerates have run into?

A. They've caused ripples and, in fact, the whole merger movement has slowed down. But a lot of factors have had an effect, including the general recession in the stock market. I think we have to concede that mistakes were made in some diversifications. In the true private-enterprise tradition, they're going to show up and people are going to pay for them—painfully, in some cases.

Q. But you remain convinced of the need for railroads, in particular, to diversify . . .

A. I do. The system under which we have to operate ties management's hands too much for real vitality. It retards growth and it retards earnings. This is one reason for railroads to diversify into other business. And the second reason, of course, is that we can't legally diversify into other fields of transportation—even though I think this kind of diversification would be of major benefit to the public.

Q. You mention "the system". . . .

A. For 80 years or more, railroads have lived in a never-never land, where they're half private enterprise and half what you might call public enterprise. Government makes the important economic decisions, most of them, in the railroad business. We can make them tentatively—but government makes them finally. Yet we, in management, have the final business responsibility. Government decides what our prices are going to be. Through the processes of the Railway Labor Act, government has a big hand in deciding what our costs will be. And then there are the compromises and delays—and I'm not just talking about delays related to mergers. Take our Rent-A-Train. It's well into its second year of operation—and we still don't know if it's lawful. I believe this: If we're going to have financial responsibility in the private-enterprise sense—if we have to make our way in the money markets, and stand on our earnings record and on our stock prices, and capture the confidence of the investor—then we should get to make the business decisions, the economic decisions. This is a basic weakness of the system. And this is why it's time for meaningful reform.

Q. More so now than five or 10 years ago?

A. This disparity between authority responsibility is not nearly so important in a stable or slow-moving economy as in a fast-moving economy. And we live today in a dynamic time, where things happen fast. It becomes very frustrating, if you have a management that wants to be as dynamic as the times require.

Q. ICI seemed to move very deliberately into diversification . . .

A. We developed a basic idea for diversification in 1963. We didn't make our first move until 1965, and it was a modest one. By 1968, I felt we were in position to go more deeply into diversification. We had major railroad improvement programs under way, we had made progress in restructuring and staffing the railroad, and we were well along toward finding our place in the railroad merger picture through the IC/Gulf, Mobile & Ohio proposal. You're familiar with what's happened since then—involving Waukesha Foundry, Abex, Pepsi-Cola General and, of course, our acquisitions and our new companies in the real estate field.

Q. And your position today?

A. I think it's fair to say we have been successful. Look at our earnings statements thus far in 1970. If we had not diversified, we would have had a drop of 40% in pre-tax earnings for the second quarter—because that's what the railroad had. As it was, ICI showed a 19% increase in net income. I believe this is very pertinent to a primary railroad problem—which is, how do you maintain the confidence of the investing community? It's safe to say that our railroad's credit would not be so good if we had not diversified.

Q. How has this benefit to the railroad been demonstrated?

A. Let me say first that we have a strong balance sheet on the railroad, and we've been recognized as being pretty well-run. But we have put a lot

railroad

ICI CHAIRMAN WILLIAM B. JOHNSON

"It's safe to say that our railroad's credit would not be so good if we had not diversified"

of money into modernizing the property. In the time I have been here, we have doubled our average annual investment in the railroad. We have to have a strong credit position, and the confidence of investors. In 1971, this requirement will be even more important—because in my opinion, there may not be very many railroads which will be able to borrow large sums at reasonable rates. The financial community recognizes that the IC has diversified successfully—and this has been of immense value in our raising capital for the railroad, in large amounts and at reasonable prices.

Q. And the standing of the railroad is still high, in your corporate thinking. . .

A. If anybody thinks we're running away from the railroad, he ought to have his head examined—and ours, too, because as we have diversified we have increased our capital expenditures on the railroad. In 1969-70 we will have spent more than $140 million, including a record-high of about $72.5 million this year. We will cut back in 1971. But whatever we do on the railroad in '71, we will do it better and probably more of it than we could if we were not diversified. We expect our subsidiaries to be able to raise their own long-term money for expansion. But the credit position of the whole enterprise is the decisive thing—the "family" that backs up our position in the capital markets.

Q. How about growth rates today?

A. The growth rate of the family is at least twice the growth rate of the railroad alone. This helps to maintain investor confidence. It also means that our stockholders won't necessarily think about a bailout if the railroad falls down. To sum it up, I have no doubt that diversification has given us increased investor confidence, better access to capital markets at prices we wouldn't otherwise get, an improved growth rate, improved dividend security, better return on equity investment, and the ability to minimize our tax burden in a lawful and proper way.

Let me give you an example of that last point: At about the time of our first big diversification, IC Railroad had accumulated tax credits which it was unable to use because it didn't have enough earnings to put them against. Those credits were about to be permanently lost. But when we diversified we were able to save $1.9 million of tax credits the first year—credits that would otherwise have been gone forever. Now, did that help the railroad or hurt it?

Q. And your response to the critics of rail diversification?

A. If railroad management wants a fair chance to succeed as a business, it's foolish not to diversify.

I know what the critics are saying. And I wouldn't presume to speak for anybody else—but I do have this feeling about one of the diversifications that has come under some fire, Northwest Industries: They've had problems, sure, and perhaps made mistakes. But when I look at their statements, there's no doubt in my mind that they're right when they say that diversification has supplied money for the railroad.

I just don't believe, for instance, that Chicago & North Western would have bought 2,000 box cars in one shot, if they hadn't had the earnings of the diversified company behind them. I'll add this: That's a pretty good management over there. It's quite likely to get that railroad in the black. And as a family, they're going to do better overall than a lot of the non-diversified companies—because the same principles that apply to business generally are the principles that should apply to railroads. The difference is, of course, that if you're running just a railroad you're tied down by a slow growth rate and inadequate earnings—and tied up by government restraints, procedures and promotional discriminations. We're lucky, at IC. We have a good railroad.

But, the best railroad today has to have terrific infusions of capital to hold its earnings level. And that gets us back to the problem of government: Regulation is just not sufficiently responsive to the dynamism of our economy.

Q. You talk of capital needs and of government's inability to respond in time to economic needs. These are among the key points in the ASTRO [America's Sound Transportation Review Organization] report. Now, reports on "the railroad problem" are centainly nothing new. How important is this one to the future of the industry?

A. ASTRO may be the most authentic reflection of what railroad people believe is necessary to preserve the industry as a private enterprise. ASTRO is a railroad report—which makes it different from many of the other studies made in the past 20 years. It was unanimously agreed to by the industry, which also makes it different from most previous reports. I think ASTRO is vitally important.

Q. Is it timely, in the sense that it has a chance of adoption?

A. I think its timeliness is beyond question. Nobody contends today that there aren't basic problems which require changed attitudes and approaches. Remember, there has been no real reform in the philosophy of transportation law or regulation since 1940. Thirty years is too long a time for laws and procedures to remain static. Economic

circumstances have drastically changed, but regulation has not responded. The Commission, of course, must stay within the statutes, and I don't blame the Commission for this condition. But I do think its communications have been poor and that it could have shown more initiative and assumed a role of leadership. It could drastically modernize its own procedures and take the lead in proposing statutory reform to the Congress. Instead, by its heritage, the ICC operates too much as a court and too little as an informed policymaker.

Q. And the evidence of this unresponsiveness?

A. It's perfectly clear that the system we have and the way it's administered have not been successful and adequate in the over-all public interest. The transportation system is not improving the way it should. It's not coordinated as it should be. The carriers are not financially healthy—and remember, this is the first mandate to the ICC, to keep regulated transportation in a healthy condition so it can serve the public interest.

Q. ASTRO has been called a grabbag, a shopping list, a letter to Santa Claus . . .

A. I'm well aware of that. There was debate within the industry, as to whether we should write a comprehensive report—which ASTRO is—or instead try to develop key programs, priority programs. At first, I took the position that we should set priorities as the initial step. But in later discussion of ASTRO, I became convinced that we should have what ASTRO is—comprehensive coverage of problems, without assignment of specific priorities.

Q. Why did you change your position?

A. For a number of reasons. For one thing, assigning of priorities has to be influenced by political feasibility as well as by a non-political determination of what we think ought to be done first. Were we to have assigned priorities at the outset, I'm afraid the tendency would have been to take the most difficult first—because law and regulation have been so frozen and inflexible for the past 30 years. Then too, without any real action on our part, priorities have been and are being assigned by public opinion.

Several proposals in ASTRO have already been assigned priorities, in effect, by public and Congressional interest. There's the attempt to rationalize the passenger-service situation, the legislation prohibiting tax discrimination and the urban mass-transportation program—all before the present Congress. My feeling is that priorities will continue to be established this way—emerging from an evaluation of political feasibility in relation to pressing need.

Q. Do you have a feel for the proposal that may be next-up in priority?

A. I think it's vital that legislation be developed quickly to help in the construction of freight cars. That step equates with service, employment and revenues. It is especially important because of the consequences of the Penn Central collapse. This situation has produced headlines, fishing-expeditions and finger-pointing. I suppose this is natural. Something went wrong with that gigantic enterprise, and it's human nature to want to find out what, why, and so forth. Eventually, there will be a halt to the recriminations, and the climate will be better for constructive moves.

"Railroads ought to be investing $3 billion a year in capital improvements"

But in the meantime, the general investor, who has the real capital in the money market, is tending to put thumbs-down on the railroad industry. There are exceptions, of course. Perhaps 10 or 12 railroads among the 70-some big ones can go into the money market and command capital at what, for these times, is a bearable price. But these few railroads alone can't buy 70,000 freight cars a year—and I regard 70,000 as an absolute minimum figure to meet the needs of the public. Penn Central itself should order several thousand. You have to consider that railroad fixed charges are quite high, in relation to net railway operating income. You have to consider that working capital, for down payments, is hard to come by. You have to look at the debt maturities facing railroads, and you have to recognize the loss of confidence growing out of Penn Central, with the sensational news and investigations.

I'm convinced, and I have been for a number of years, that railroads ought to be investing $3 billion a year in capital improvements. But we've only been able to do about half that. In the end, you get back to that primary problem: The inability of the railroad industry to attract enough capital at prices it can afford, to do the things that have to be done for adequate service.

Q. Are investors really that "down" on the industry?

A. I would suggest that you and the ICC and DOT and the Congressional staffs talk to the people who raise capital for railroads. Ask them: Will railroads be able to raise capital to meet their maturities? At what price? What effect will his have on net income? Can railroads carry these fixed charges? How about the big insurance companies? Will they be willing to put up new money? And how much?

Q. Doesn't this lack of capital spill into other areas?

A. It certainly does. We're aware of many things we ought to be doing. We're aware, too, that government has the power to adopt all kinds of "do this, do this, do this" rules. Eventually, they will have to realize that they can't get blood out of this turnip. In its ultimate effect, the crisis is a crisis of capital and earnings. The immediate impact will be on car supply—perhaps not today, but just ahead. That's where we will lose our growth, ironically—and that's where the public will take it in the neck.

Q. How aware of all this is Congress?

A. I think Congress is becoming more aware, every day. I'm hoping that when members of Congress are in their home districts campaigning, they'll be able to see the early effects of the problem on their constituents. As for the ICC and DOT, I can't conceive of their not recognizing that the capital shortage is of disastrous proportions—and that unless there is a prompt restoration of investor confidence and of railroad borrowing and earning power, this capital shortage will be directly translated into freight-car shortages in 1971.

Q. For its own part, what will the industry do to promote ASTRO—keeping in mind the Penn Central situation and the recent decision to reduce AAR budgets?

A. I think the industry will do what-

ever is necessary and spend whatever money is necessary to carry out an effective program.

I have to add this: One good thing about this recession—if you can find anything good, aside from its anti-inflationary effects—is that it provides both a need and an opportunity for a critical examination of everybody's operations. This is healthy. It goes into what an organization is doing, what it needs to do, whether it's operating efficiently. Every organization needs to get that kind of study from time to time. As for ASTRO, you can be sure that the industry unanimously appreciates its importance and will work for its promotion.

Q. IC Industries has its own stake in the railway supply field, through Abex. What is your feeling about the state of the supply industry?

A. Abex currently does about 22% of its volume in railway supply, mostly in replacement items. That percentage used to be much higher—but Abex has diversified, just as railroads and other suppliers have diversified. There's no doubt, generally, that we have seen a withdrawal of companies from railway supply in the past several years. These companies are not regulated, unlike us, and they're free to withdraw if their return-on-investment indicates that they should. I think the past and prospective decline of this industry is a serious negative development. If many more of them quit the field, then the railroad industry will have a new problem.

Q. In the total sense, how do you look at the future of railroads?

A. I think we are at a critical point. Railroads will either become more in the nature of true private enterprises through a degree of deregulation and other statutory reform—or they will become less so, and you know what that course indicates.

Railroads simply cannot stay in this never-never land—where they are expected to carry the full financial responsibility out in the real world, the private-enterprise world, while their basic economic decisions are being made by government in a world which is quite different in both motivation and pace. If there is a third alternative, it will lie in some kind of new realization of the railroad/government relationship, with more private enterprise in some areas and less in others. Unless there is major change, soon, the public and railroad employees will be the ultimate losers.

"We have to move together . . ."

Q. Mr. Boyd, as a man who has spent a good part of his working life in government service, what are your impressions of railroading—after a year and a half at IC?

A. I've never been more convinced of the importance of the industry—nor more concerned about its future. I don't propose it and I certainly don't support it—but I have to recognize nationalization as a real alternative. Faced with a choice between nationalization and allowing the railroad industry to rust away . . . well, there would be no choice.

Q. What do you believe might happen, if the industry were nationalized?

A. First, I think the railroad system and its operation would be rationalized in a hurry. DOT would be given so-much money for operation, and inevitably it wouldn't be enough. So DOT—or whoever was placed in charge would go trundling off to the Bureau of the Budget for more, and BOB would say "No." And DOT, or whoever, would go to the President, and after consideration the President would back up BOB, maybe adding just a little money. At this stage, we would see some rather sudden rationalization of the railroad system. Anybody who thinks it would happen differently just isn't very well-informed, in my judgment.

Second, I think that nationalization would help get rid of the interchange nightmare, this delay process where you lose days and days in terminals. The system which has been developed—and I'm thinking of the large terminal areas with their terminal railroads—is simply a very inefficient system. Single management, such as you would have with nationalization, wouldn't continue it. Of course the ironic thing is that many of these same changes—these improvements—could be made without nationalization, if there were changes in law and human nature.

Q. How much time for change is there?

A. I wonder. Go back 20 years and chart the trends, for capital additions and betterments and pre-tax profits. You'll see a zero increment in profit, from billions of dollars invested. In the past few years, earnings improvements have been largely related to changes in tax laws—not to any basic improvements in the railroad situation. At the same time, I think there are mistakes we have made.

IC PRESIDENT ALAN S. BOYD:
"There has been too much dissension in the industry. I think this is changing and that's good"

Q. You're talking about. . . .

A. For example, I wonder about our emphasis on bigger and bigger freight cars. I don't believe the industry has really calculated the costs of operating this equipment. We've been able to put in incentive rates. But what do the figures show? They show our revenue per ton-mile and our profit per ton-mile lower than it was in 1958, despite our

vastly increased investment. They also show that this increased use of heavier and heavier equipment is having a major impact on costs related to track and roadway.

Q. If you forego operation of longer and heavier trains, what do you do?

A. Improve car utilization. Run shorter trains, more frequently. But there's a limit as to how far you can go—and that limit is now largely related to wage costs. What we might like to work toward, for example, is movement of a train every six hours between major terminals, regardless of the number of cars available. I think this kind of service would help to attract business. But we would have to have the cooperation of the labor organizations if we were to do something like this.

Q. Is the capacity available to have this kind of train operation?

A. Our operating people know what kind of train operation we're capable of. We can move a lot more trains, with present signal systems, present lines. One of the things we're concerned about is the finite capacity of the system, given present operating conditions—and I emphasize "present." I'm guessing that we'll find this capacity for our railroad less than 60,000 cars and we now have an average of between 50,000 and 55,000 cars on-line.

A. This indicates that you can't take many more cars, which means you have to move cars faster . . .

Q. And that brings me to the subject of per-diem. I think we could live with a change that would break per diem into 24 segments or even into three eight-hour segments each day—instead of this 11-o'clock-trot we put up with now, where your big concern is just to get cars off-line by midnight. It wouldn't be all that hard to maintain the necessary records. Maybe larger roads would have to provide service for smaller roads that don't have the communications and computer equipment. But I think it could be done, and I think there's support in the industry for this proposal.

Q. How do you square this belief with the fact that railroads have been arguing over per diem for years in the courts?

A. Reluctantly, and as a newcomer to the industry, I have to say I think railroads have been hurt by problems in management. We're not providing the kind of service we should be providing. A lot of this failure can be laid to outside factors—fundamental problems outlined in the ASTRO report, and certainly I support the valid and legitimate objectives that this report represents.

But it seems to me there has been too much dissension in the industry. We seem to spend as much effort fighting each other as we do trying to get problems corrected, or trying to provide the kind of service which will give us a reasonable profit. I think this is changing, and that's good.

My experience tells me that we can't get what we need from the public and from government just because we're bleeding—though there's certainly no doubt that we are bleeding. Face it, everybody has problems.

What we have to do, as I see it, is to balance the scales. We say what government should be doing. At the same time, we say what we're doing, and here's the list . . .

"We have to do a better job of dealing with the employees in terms of common interests"

Q. What would you put on this list?

A. From a service standpoint, Number One has to be improvement in the movement of cars through interchange. We've made all sorts of technological improvements in road and yard operations, but it seems to me that we still handle the interchange of cars much as we did in 1900. We get to an interchange point, and we set out a cut. The cars sit there until they ripen, and then somebody comes and picks them up. This goes back to the way we assess per diem, and it also has to do with our basic costs of operation, of course.

Q. How about those costs—specifically labor costs. . .

A. The industry has to do better in its educational efforts. I mean educating government, educating the public, educating each other—and, importantly, educating the people who work in the industry. We have to do a much better job of dealing with the employees and the organizations in terms of common interests.

It's a ridiculous situation—that we should have so much difficulty agreeing on common interests. We're losing market share on a ton-mile basis, we're losing in revenue participation at an even-greater rate. The employees are losing jobs, and the unions are losing members.And here we all sit, doing very little except to fight each other. Management feels it has no alternative but to cut jobs because the company can't swallow the wage costs, the total labor costs, that may be involved. Labor feels it has no choice but to dig in and fight to maintain what it has and try to get more.

Q. Is the JOBS Commission going to help in this area?

A. It has to. We have to work out some way, with the organizations, to change the trends. This is to our interest, and theirs. The employee wants a decent income, job security, interesting work, good working conditions, the opportunity for advancement. We and the labor organizations ought to be able to have a better understanding among ourselves as to how we can help the employee get what he wants and help the railroad get what it has to have. JOBS Commission is an effort to explore a more labor-intensive approach to railroading, based on marketing studies, based on our being able to offer new services to get new business which will be profitable. The formula has to work out to a mutual benefit. And both the railroad and the organizations have to change.

We can't have, in either management or labor, any hope for the future if we try to hold onto traditions and institutions and fixed ways of doing things, just because we have them and we're used to them. I'm not saying we have to have a revolution, just because it's 1970 and we're all in trouble. I'm saying we have to have reasonable change all around.

Q. How much of a catalyst for action has the Penn Central situation been, along with the problems facing so many railroads?

A. The basic problems have been evident for a long time. ASTRO is a good example. Its release just after the Penn Central collapse was a coincidence, because as you know the program had been under study for months. As you also know, there was full agreement within the industry on the recommendations. And I think this is one of the

most encouraging things that's happened in the industry. There is a new realization that we have to move together, and that we have to deal with common problems with a united front. I'm hopeful that this will spill over into our approach to problems which you could describe as intra-industry.

Q. Per diem, divisions, rate-making. . .

A. These are business problems. They can't be resolved to everybody's complete satisfaction. But there have to be reasonable solutions which everybody can live with—and which can let the industry get off the dime and on to other things.

I wish somebody could calculate the amount of time, talent, effort and money that has been eaten up since the early 1950s in arguing over the per-diem problem alone. I'll bet it would be a shocker. And sure, per diem is a major problem. If it weren't a major problem, we wouldn't have been fighting about it for more than 15 years.

I'll say it again: I'm new to railroading—but I think, and I'm convinced there are a number of other people who think, that it's just ridiculous to go on arguing the same issues day after day, year after year, saying the same things, and getting nowhere.

Q. There is, of course, the problem of actually knowing specific costs—where rate-making, for example, is involved. .

A. Even ahead of that, there's the problem of differing philosophies. There is still a belief, in some places, that the object is to move traffic in volume—all possible volume in order to spread the overhead. This was fine, in a monopoly situation. But it's not fine today.

As to the problem of knowing costs, I would say this: We can do it. On IC, we're beginning to do it. We don't now know the costs of moving all of the commodities we haul, but we will know—and within a fairly short time. If we can know this, others can—and we'll sure make our methods available to anybody who wants to know.

Generally, I think we've been too much oriented to "moving" costs. We had the feeling that somehow a car didn't cost anything until you moved it. We and our operating officers looked at operating costs and at measurements of operations in terms that emphasized volume-efficiency. We know now that what we have to look at is the utilization of assets, the utilization of capital.

MANAGEMENT CLOSE-UP: Illinois Central

JACK C. HUMBERT
Vice President—
Operations

ALLEN L. SAMS
Chief Engineer

An all-star team— with a winning record

IC is run by individualists who regularly throw tradition out the window.

PAUL H. REISTRUP
Vice President—
Traffic

JOHN W. INGRAM
Vice President—
Marketing

HENRY F. DAVENPORT
Vice President—
Passenger Services

RICHARD P. DECAMARA
Vice President—
Administration

Not many months from now, hopefully, the area around 12th and Michigan in Chicago will hear the sound of the wrecker's ball, the jack-hammer, maybe even the blaster. The old fortress that Illinois Central calls home will crumble. With few apologies to the nostalgia-minded, a magnificent new headquarters office building will go up. IC will be ready for the new environment. IC is ready now, in the sense that the only thing old or traditional or stuffy about IC is the building itself.

People wonder about IC, and a Chicago-type analogy might be drawn: A few blocks down the Outer Drive from IC headquarters is Soldier Field, a stadium which draws nationwide television attention once a year when the College All-Star football team shows up for its annual (usually) defeat by the professional champions. Some people liken IC management to the All-Stars—a group of individual standouts, but hardly a team. And the comparison isn't all that unreasonable. Top management has its share of up-from-the-ranks officers, but more than most roads, IC has imported talent—from other railroads and from outside the industry. More than most roads, probably, it also has leaders who, without a doubt, are individualists. There's one key difference between IC and the College All-Stars: IC has a record of winning.

As you make the rounds of IC, you find the people, the ideas and the accomplishments that make it all work.

Train operation

Shorter trains? More frequent trains? New designs for classification yards? New standards for measuring performance? Suggest any of these, and you find a ready advocate in Vice President-Operations Jack C. Humbert. What you don't find is an operating man who (1) has much faith in the old measures of operating efficiency, (2) believes that "bigger" automatically means "better," and (3) lacks faith in the ability of rail management and rail employees to get together on ways in which service and profitability can be improved.

One of Humbert's main concerns at the moment is that matter of bigness, in power and equipment and in train operation. His fear is that the whole railroad complex—carriers, suppliers, labor organizations and even shippers—has embraced a concept that's leading to disaster.

Given a fresh start, Humbert would be running IC a lot differently—with greater emphasis on such things as locomotives in the 1,200- or 1,500-hp range, 50-ton freight cars, frequent freight schedules. "Take a double-track railroad in signal territory," he'll say. "You could run 200 trains a day over that railroad without even straining it, if you were running the right kind of trains." And, a key point: "You wouldn't have to spend a dollar for upgrading, with heavier rail and stronger bridges and so forth. You'd spend for maintenance, yes. But not for the

kind of upgrading we have to do now, with everything getting bigger and heavier in this 'size' race."

Of course, labor contracts—current ones—are a major stumbling block. But Humbert and other members of the IC/United Transportation Union JOBS Commission are hopeful, maybe even confident, that ways can be found to provide the kind of profitable new services which he—and Vice President-Marketing John W. Ingram, among others—firmly believe are necessary.

Engineering/maintenance

While Humbert looks to a different kind of future, Vice President and Chief Engineer Allen L. Sams is charged with the job of getting ready for tomorrow while still providing today's railroad with a solid, safe operating base. Like many other roads, IC has had lean years in maintenance. Starting this year, Sams will have more money to put into the property—to the extent that over the period 1970-74, he expects to average one million new tie insertions each year, along with about 200 miles of new welded rail and close to 280 miles of relay welded rail. Comparable stepups will be made in surfacing and bridge renewal.

As the program moves ahead, Sams says, "average weight of rail will be increased, condition of track will be improved, ballast and ties will be in much better condition. We'll have fewer slow orders, and we'll have fewer derailments resulting from track conditions. And all of this will help the operating department to improve schedules."

When he talks futures, IC's chief engineer sees "no drastic changes in the principle of track structures—but considerable improvement in the quality of that structure. Heavier rail, better drainage, better and cleaner ballast, yes—but basically, the track structure will stay pretty much as it is now."

Terminal operations

Some of the more striking changes in IC operations could take place, however, in the structure and operation of freight classification yards. One of Humbert's first moves as VPO was to reshape departmental management from a regional into a system organization, and to appoint two general superintendents—one with the responsibility for over-the-road movements and the other assigned solely to terminal operations. Now, IC is looking at the physical aspects of its yard structure in discussions which could lead to the building of as many as three new class yards. The need is still being debated; so are the tentative locations chosen.

As operating officers will point out, too, the possibility of change in work rules and in train-operation concepts could have major effect not only on the location of new yards but also on the configuration. It's a big "if"—but if train crew runs were lengthened and if the railroad were able to operate the shorter, faster, more frequent trains that Humbert talks about, yards might

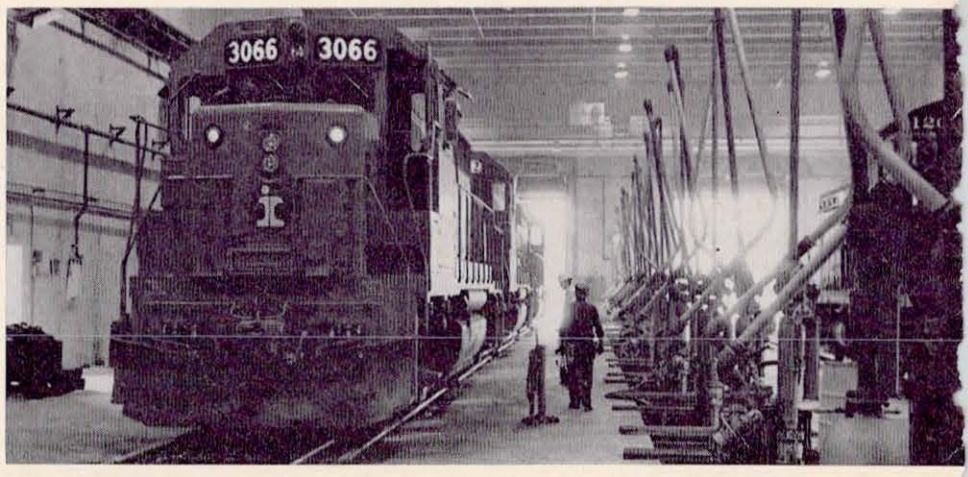
JOBS COMMISSION: Earl Oliver and John D. Mitros played key roles in its creation.

The story behind Woodcrest

The "open for business" sign has been hung out at Illinois Central's new $19-million Woodcrest equipment-maintenance facility at Chicago.

The locomotive side of the shop complex is operating with upwards of 100 units a day going through for servicing and repair. Construction work is still under way on the second part of the shop, which will handle intercity and suburban passenger-car maintenance. Carshop work is now scheduled for completion early in second-quarter 1971—as 130 new double-deck cars are being delivered by St. Louis Car for service on IC's electrified commuter lines.

Not many roads are spending $19 million for locomotive and passenger-car shops these days—and IC didn't approve the expenditure without careful study, on-line and off. Mechanical-department officers touring Woodcrest shouldn't be surprised if they recognize specific features from their own installations:



NEW $19-MILLION SHOP can service one locomotive every 15 minutes.

Two years ago, long before final plans were drawn for Woodcrest, IC's Jack C. Humbert had a five man task force on a search-and-report mission, aimed at developing one "best" shop design out of many good ones. Among the roads IC's team visited: Missouri Pacific, Burlington Northern (Great Northern), Southern, Penn Central, Chesapeake & Ohio/Baltimore & Ohio, Canadian National, Chicago & Eastern Illinois.

In full operation, the Woodcrest locomotive facility can fuel, sand and clean locomotives at a rate of one every 15 minutes. Main building in the motive-power complex is a seven-track run-through shop, served by a 125-foot transfer table running the full width of the shop. Separate buildings are provided for locomotive blow-out and wipe-down and for SEARCH diagnostic testing.

One major component remains to be installed—a Hegenscheidt Corp. wheel-truing station, which will serve both locomotives and passenger cars. Present plans call for installation of

well be built at points that wouldn't even be considered today. And instead of building the conventional bowl for makeup of long trains, a railroad might decide to go to a wide yard—with more tracks but shorter tracks.

Management information

If management is to succeed with the long-range plans that have to be made—in any of a hundred areas—the data base for decision-making has to be both complete and accurate. IC already has a communications network which it rates as second to none. Now, it's turning its computer center loose on more projects which will not only improve on-line operations but also improve data flow and traffic flow with connecting lines.

Earlier this year, notes Richard P. deCamara, vice president-administration, IC and three other roads operating in southeastern territory linked computer systems to provide for direct-inquiry data on car location and movement. Now, eight roads are participating.

"Obviously," says deCamara, "we all had this information in the computer. We were giving it to customers who inquired—but we weren't giving it to each other. The next logical step, which we're working on now, is to provide a connecting line with advance information on traffic moving toward it—waybill information from our computer to theirs."

Format differences are no problem: "We all have the same basic information. All we have to do is to translate this data into a common format—a bridge—which the connecting line can then translate." The AAR's TRAIN setup is designed to perform in a somewhat similar fashion. But, deCamara says, "All TRAIN knows is which railroad has a car. Our system tells where the car is. What we have now is a relatively expensive substitute which can function until TRAIN is fully operational—because I do see TRAIN moving into just this kind of operation."

Management control

Every far-flung operation sooner or later gets to the tough question of how to control operations—centrally, or with a high degree of autonomy given field forces. In de Camara's view, the computer has made centralization feasible: "Now, you can manage centrally and at the same time decentralize the execution. Frankly, I see railroads moving toward a highly centralized control of operations. I think, for instance, that central dispatching is a must—because 10 or 20 or 30 years from now, we will come to computerized dispatching, computer control of signals, electronic control of the entire operation."

Car control is another area where there's room for debate. Humbert's current thinking is that the best compromise may be to "delegate distribution to the division level, with restraints coming from a central point."

On matters of maintenance, there's less room for argument. The new Woodcrest shop for locomotive and passenger-car maintenance and repair is a prime example of centralization of work into a year-around facility, parts of which will be in operation continuously, 24 hours a day (see box). Roadway and structures maintenance obviously can't be centralized—but its control and planning can be, and that's precisely what Sams has done in working up his current five-year program.

Jobs—and JOBS

At the heart of IC's thinking on operational change is the need for cooperation between management and employee organizations—the kind of cooperation which, hopefully, will be demonstrated through the IC/UTU JOBS Commission. Thus far, the Commission (Humbert, Ingram, Vice President-Personnel Earl Oliver and Special Assistant to the President John D. Mitros are IC's representatives) has organized, it has established groundrules for discussion and it has begun considering specific new-service, new-jobs possibilities—including a rent-a-train for stone aggregates, a couple of short-haul piggyback operations and a revival of minitrain on a somewhat different basis from that which was tested last year.

Selling the service

Nowhere is JOBS Commission success being hoped-for more strongly than in the offices of Vice President-Marketing Ingram and Vice President-Traffic Paul H. Reistrup. Thus far, the principal showcase for IC marketing efforts has been the grain rent-a-train operated for Cargill. Ingram and his people, however, could be coming up with a whole host of new and profitable service packages—if the economics can be made right. At this point, they're enthusiastic about the so-called sludge trains which began operation a few weeks ago. They're also high on the application of the rent-a-train principle to stone-aggregate traffic—an application which could generate movement of two million tons of aggregates each highway-building season. That volume, IC notes, works out to the equivalent of 800 36-car unit-train movements.

IC marketing and sales people are quietly confident that the future will see significantly more emphasis on the rented train, on the unit train in a variety of forms, and on the operation of equipment furnished by the customer.

Reorganization of the pricing activity under Ingram is now complete. The old geographical structure has been replaced with a commodity-specialist team approach. Keynote of the change is the integration of modern marketing techniques with traditional rate-making procedures. "There will be no fights between marketing and rate people here," says Ingram. "Both are on the same team—and both are measured by what happens to the net income as the result of their efforts."

One of the brightest of a number of bright spots on IC has to be the intermodal business. When marketing men look at the market in IC territory, they're looking at a piece of traffic which could be producing up to 50% of freight revenues (excluding the coal

(Continued on page 130)

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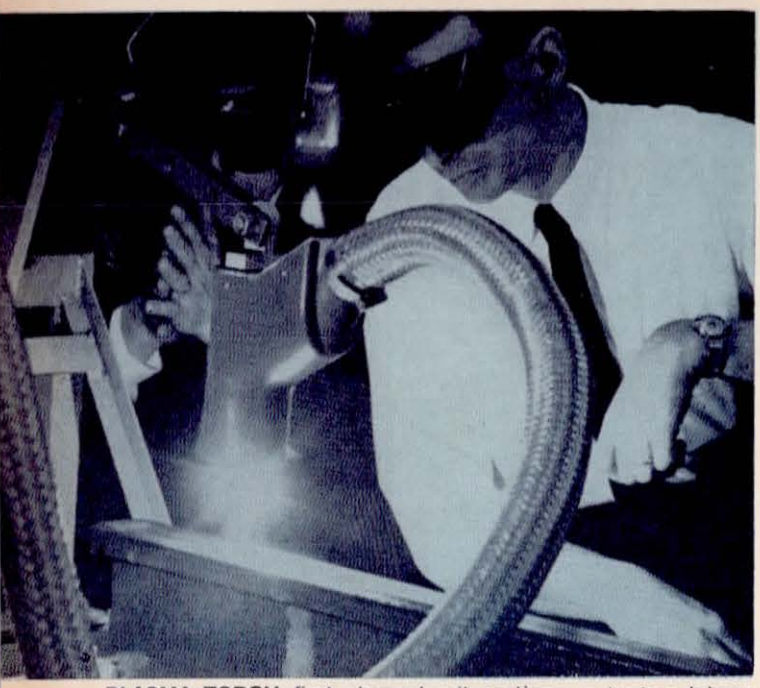
this equipment by the end of the year.

IC is working against a couple of deadlines, in completing the passenger-car shops. There is the arrival of the new suburban-service cars, scheduled to begin in December and pick up to a rate of eight a month early next year. And there is the fact that IC has sold the land on which its present maintenance shop stands—with the new owners scheduled to take over next April.

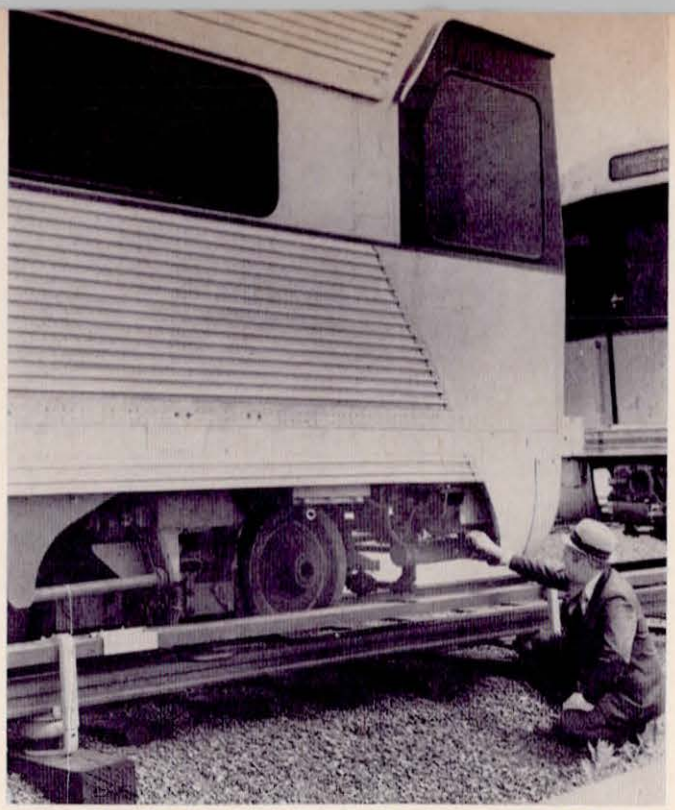
Over the next six months or so, decisions will be made on shop-support systems—for instance, the use of closed-circuit television, the installation of pneumatic-tube systems for transmission of written instructions, and the use of the computer in scheduling and recording maintenance operations.

One shop-support decision has already been made—one that should give IC a "plus" in the ecology department. The road has installed a complex water-waste treatment system which, IC says, is keeping water-waste content at 15-or-less parts per million, well within the limits of existing regulations.

What's next for Woodcrest? First, completion of passenger-car shops and the final touches on the locomotive facility. And then? Maybe, someday, a similar, well-researched and well-designed freight-car repair shop. The plans aren't drawn, and the money hasn't been set aside. But the idea is there.



PLASMA TORCH first cleaned rail sections in Wabco laboratory; now full-scale road testing is being conducted.



HYDRAULIC BRAKE, initially appraised on BART test track, is now operating in revenue service on Patco Car 112.

Technology is put to the stop

Abex investigates hydraulic braking while Wabco seeks to improve wheel/rail adhesion.

At a time when ecologists are advocating that technology be stopped, much work is actually being done on advancing the technology of stopping. The increasing demands imposed on transit-car braking systems are evident in virtually every new order for rolling stock. And as automated operation becomes more common, the importance of precision stops becomes more apparent.

Two recent developments point up the often unheralded role played by railway suppliers in advancing the capabilities of the rail mode. The Abex Railroad Product Division has been testing a hydraulic transit car brake in regular service. The Air Brake Division of Westinghouse Air Brake is currently appraising a possible means of improving wheel-rail adhesion.

● **Super subway cars.** When New York City Transit Authority gets its "super subway cars" next year (RA, Feb. 2/9, p. 24), eight of this R-44 order will be equipped with Abex electro-hydraulic braking systems. This test of the new retardation concept is but one phase of a general NYCTA program for appraisal of new technology, laying the groundwork for design of future passenger equipment.

Actually, development of the Abex system started several years ago and the first design was installed on one of the laboratory cars of Bay Area Rapid Transit where it was operated over the Diablo, Cal., test track. More recently a later version of this brake has been in service on the Philadelphia-New Jersey transit line of the Delaware River Port Authority.

When Abex undertook the design of a new brake, it could call upon the hydraulic capabilities of its Denison Division which specializes in such systems for industral applications. What had attracted the Railroad Products Group to hydraulics for railroad braking were the speed and the positive response possible with hydraulic fluids. Such characteristics were seen as making possible very precise stops, assuring close headway on transit systems and maximizing utilization of the entire transportation plant.

In arrangement, each of the Abex hydraulic brake units is similar to the packaged pneumatic units used on most new transit cars. The hydraulic system is actuated from a 600-psi accumulator which is pressurized by a motor-driven pump.

A solid-state control system assures that the hydraulic braking system can operate in conjunction with the dynamic brake and with air brakes on other cars in the same train.

It is this sort of mixed consist in which Port Authority Transit Car 112 is regularly operating as it traverses the Lindenwold-Philadelphia route. The Abex brake was installed in February 1970 and has since operated approximately 20,000 miles. Both Patco and Abex are satisfied with the performance.

While new transit technology frequently seems of little consequence to many in the railroad industry, there actually is much in common in the way of both problems and solutions. New York Air Brake has been working with hydraulic braking for passenger equipment and also has experimental systems on an articulated Chesapeake & Ohio hopper car (RA, July 28, 1969, p. 22) and on a road freight locomotive. New York will supply the electro-hydropneumatic braking systems for the 130 multiple-unit cars for the Chicago suburban lines of Illinois Central (RA, Nov. 17, 1969, p. 57).

● **Dual benefits.** The prospect of early passage of the Urban Mass Transportation Act of 1970 holds the promise of corollary benefits for freight railroading. There can be a spreading of plant overhead when transit-generated production such as car wheels, swells regular output. And research often produces dual benefits.

Westinghouse Air Brake, for instance, is currently investigating a method of improving wheel-rail adhesion which it sees as benefitting both heavy freight and automated passenger railroads. This Plasma Jet Adhesion Boosting System might possibly permit railroads to get fuller utilization of locomotive capacity, previously limited on ruling grades. In mass transit equipment it could produce new braking capabilities.

While WABCO officers have not yet endorsed the concept, they have negotiated a U.S. license for the British-developed plasma torch which produces a flow of ionized gas to sweep contaminants from the rail head. In cooperation with engineers from Britain's Tetronics Research & Development, WABCO's Wilmerding, Pa., laboratory has refined the firing sequence and circuitry for firing controls of the plasma torch.

Now road testing has started on the Bessemer & Lake Erie. WABCO wants to be very sure that the system is compatible with railroad and mass-transit environments and operating procedures. In recent years the plasma technique has been used to clean metal surfaces, particularly components for atomic energy equipment. The U.S. Office of High Speed Ground Transportation has already sponsored an evaluation of the plasma torch under operating conditions on the British Railways.

Conclusions of the report BR made to OHSGT: The d-c arc plasma torch "is very effective in eliminating low-adhesion spots on the track. A substantial overall improvement in the general adhesion level was also obtained." It was predicted that such adhesion improvement should enable "much more effective use of available locomotives" with an "elimination of damage to rails and wheels by slipping."

Along with these benefits "additional savings will be available from more effective braking, but since braking problems normally become significant at much higher speeds than those used in this evaluation (30 mph), additional work is required."

Such related transit/railroad technology is not unique. Indeed, all of today's heavy electric traction is based on early street-car developments. The concept of multiple-unit control which Frank Sprague developed for rapid-transit service before the turn of the century had a significant effect on the diesel motive-power revolution of the past 40 years.

Two decades ago tests of ignitron rectifiers on a Pennsylvania electric commuter coach eventually resulted in the a-c/d-c transmissions which characterize all of today's high-horsepower diesel freight locomotives. ■

Utilities complete electrification study

Five-year analysis details advantages of central-station power for meeting future U.S. rail transportation demands.

Electrification, the accepted method of propulsion in rapid transit, has had a relatively minor role in American main-line railroading. Edison Electric Institute, the utility trade association, has recently completed a study which it hopes will give a boost to prospects for electrifying U.S. railroads.

Early in 1965 the EEI Board appointed a committee to investigate the technical and economic feasibility and problems associated with electrification of railroads. A task force was organized to carry out this assignment; its three-part report has recently been issued *(Available on request from Edison Electric Institute, 750 Third Avenue, New York, N.Y. 10017).*

"From experience abroad and, to a limited extent, in the U.S., it appeared that economic advantages could accrue to both railroads and utilities by electrification," reported the task force. "Savings in investment costs and in operation and maintenance expenses may be available to railroad operators where traffic density is high and in other circumstances. For electric utilities, increased sales of power and energy provide incentive for investigation."

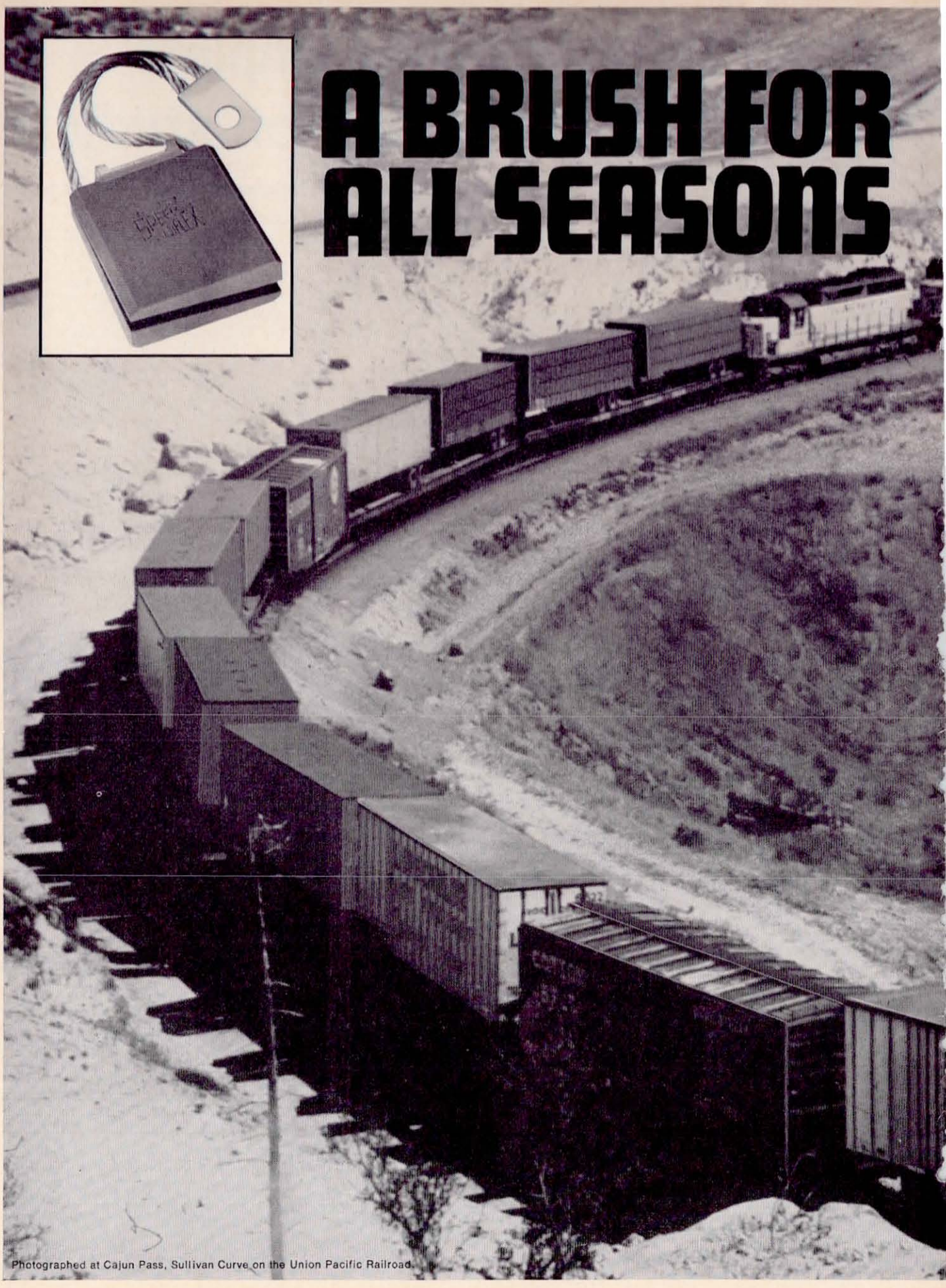
● **Three phases.** The first volume of the EEI report outlines the conclusions of the task force. The second volume presents a model study of the technology and economics of electrifying the New York Central's 600-mile line from Harmon, just north of New York City, to Cleveland, Ohio. The third volume contains the report of Gibbs & Hill, consulting engineers, which was engaged to prepare designs and estimates for overhead wire systems using the latest technical information available from U.S. and foreign sources.

While the NYC/EEI investigation (made prior to PC merger) was more or less hypothetical, it did come up with an $85 million price tag (1968 costs) for catenary over 1440 track miles between Cleveland and New York. Southern Pacific has been more sanguine in its electrification studies, the most significant of which was recently described by P. V. Garin of SP's mechanical department and representatives of Southern California Edison.

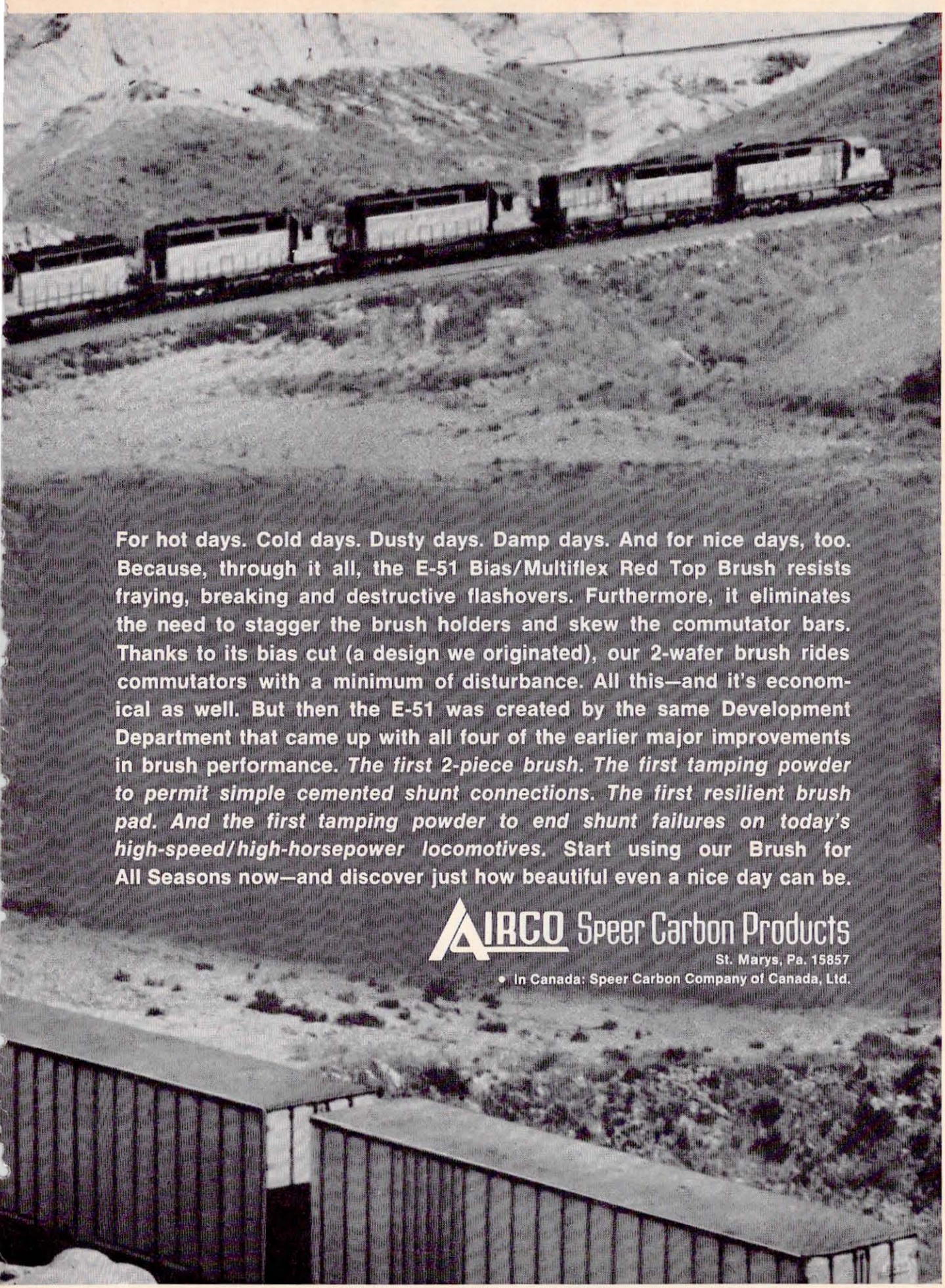
SP's interest in the potential of electrified operation led to a study of the Los Angeles-El Paso main line. In cooperation with Southern Cal Edison, the technological and engineering factors involved in electrifying the 197-mile segment from Colton, Cal., to Yuma, Ariz., were thoroughly appraised. This section of the 760-mile route involved only a single utility; several power companies would be involved in the entire line.

SP decided on a 50,000-volt, 60-cycle system as the most practical for lines running through areas so sparsely settled that utility supply points would be far apart. The line in question does have substantial traffic and the prospect for continued traffic growth. It is already marked by high operating speeds necessary to meet competitive schedules. Many trains move over the 760 miles without classification or switching. An absence of tunnels and overhead restrictions such as highway overpasses would simplify catenary installation. Grades approaching 2% limit present train speeds and give an opportunity for showing electrification's ability to move trains faster and more efficiently. There are few parallel open-wire communications circuits which could be affected by the high-voltage transmission system.

● **Optimum system.** The SP/SCE study notes that a "promising advantage of electrification is being able to optimize the use of the physical plant, particularly the main-line trackage." It was estimated that catenary construction would take four to six years to complete on the Colton-Yuma section, but that comparable segments east of Yuma would be done in three years, or less. The conclusion: "Railroad electrification, using commercial frequency supply from a three-phase utility system, appears to be technically feasible for heavy long-haul freight operation through low-power-density areas . . . The economic desirability of electrifying the Los Angeles-El Paso mainline are well beyond the scope of [this study]. Economic factors concerning railroad operations, locomotive maintenance, signaling, communication, and planned investment for electrification must be analyzed." ■



Photographed at Cajun Pass, Sullivan Curve on the Union Pacific Railroad.


For hot days. Cold days. Dusty days. Damp days. And for nice days, too. Because, through it all, the E-51 Bias/Multiflex Red Top Brush resists fraying, breaking and destructive flashovers. Furthermore, it eliminates the need to stagger the brush holders and skew the commutator bars. Thanks to its bias cut (a design we originated), our 2-wafer brush rides commutators with a minimum of disturbance. All this—and it's economical as well. But then the E-51 was created by the same Development Department that came up with all four of the earlier major improvements in brush performance. *The first 2-piece brush. The first tamping powder to permit simple cemented shunt connections. The first resilient brush pad. And the first tamping powder to end shunt failures on today's high-speed/high-horsepower locomotives.* Start using our Brush for All Seasons now—and discover just how beautiful even a nice day can be.
AIRCO Speer Carbon Products
St. Marys, Pa. 15857
• In Canada: Speer Carbon Company of Canada, Ltd.

Circle 24 on reader service card

'How I'd run

The maintenance man

First of all, I'd get out of my office and shake the hands of a few maintenance men. I'd tell them how much I appreciated their work and how important they are to the success of the line.

Then I'd give them cars that are easy to maintain. Like the new stainless steel passenger jobs that Cleveland runs out to the airport.

They weigh a lot less per foot of car length, which means less wear and tear on the bearings, brakes and propulsion equipment. You don't have to paint them, because stainless steel resists corrosion without paint.

And even though stainless cars get dirty just as fast as the old-style painted cars, they don't show it as soon. Now, I'm not in favor of dirty cars, but giving an 85-foot car a bath takes time and money and effort. So if I had to stretch out the time between washings, I'd get stainless cars because they look better longer.

If I were running this railroad, I'd make it a stainless steel line.

this railroad'

The weekly passenger

Well, I'm glad you asked me. I take the train in to go shopping or to meet Harry and I used to think all trains were like the ones on our suburban line.

Then Mother came up to see us from Philadelphia and she was just raving about the new stainless steel Metroliner. So I went back with her for a few days and the trip was really a lovely experience. The seats were so comfortable, and the trip was so fast. Somehow the train seemed so much cleaner. It really spoiled me for our local railroad.

What Mother likes is how the high-speed trains make it easier to visit us. Harry likes the way they get her back to Philadelphia faster. The Metroliner is about the only thing she and Harry have ever agreed on.

If I were running the railroad, I'd try to make every train as good as a Metroliner.

INTERNATIONAL NICKEL

For a copy of our brochure—"Nickel Stainless Steel—The Modern Material for Modern Transit"—write to Section RA970, The International Nickel Company, Inc., 67 Wall Street, New York, N.Y. 10005. In Canada, The International Nickel Company of Canada, Ltd., P.O. Box 44, Toronto-Dominion Centre, Toronto 111, Ontario.

Circle 25 on reader service card

ACI program heads into the home stretch

Potential cost cuts and operating benefits are being studied as deadline for labeling the interchange fleet comes closer.

By ROBERT W. McKNIGHT
Signaling Editor

With a little over three months left to meet the AAR's deadline for labeling the interchange fleet with automatic freight car identification labels, there is evidence that the ACI program is making progress. For example:

—Upwards of 90% of the interchange freight car fleet is now equipped with ACI labels.

—Accuracy of readout from ACI scanners in service is above 95%, and 100% accuracy has been achieved on many railroads on individual train passings.

—Twenty-two member railroads of the General Managers' Association of Chicago have approved a task-force report recommending installation of 109 ACI scanners at 40 strategic locations in the Chicago terminal district. Roads are now making cost/benefit analyses of the project, and each road is determining its role in this ACI interchange and information network.

—Eighteen railroads in the U. S. and Canada have 88 ACI scanners in service or on order. Included are several roads with test installations of one or two scanners who have indicated that orders for considerably more scanners should follow the testing period.

—Specifications for a common interface unit to link ACI equipment to communications lines have been developed by an AAR Communication & Signal Section ad hoc committee to study and develop ACI hardware standards. Approval is expected this week at the C&S Section annual meeting in San Francisco.

—Test labels have been developed by the ad hoc committee to check upon the operation of ACI scanner and decoder equipment.

Almost all railroads have at least one person or a committee or a task force concerned with determining applications, costs, benefits and implementation of ACI.

● **Work to be done.** Along with these signs of progress, indications are that much work must still be done by railroads before ACI reaches its full potential in reducing operating costs and improving quality control. It takes time and manpower, for example, to make cost/benefit analyses.

One large railroad made a detailed analysis of its open-car-record operation. The study revealed that 200 clerk-days per month are spent on closing open records. Also, another 250 clerk-days per month are spent in handling incorrect per-diem charges. This road handles about 185,000 cars and 10,000 TOFC/COFC units daily on its lines. The cost for closing the open records and adjusting per-diem charges totaled $250,000 per year. According to one officer, ACI should appreciably reduce this cost.

ACI LABELING OF THE FREIGHT CAR FLEET is almost complete as the January 1971 deadline nears. Estimates are that over 90% of cars in interchange service are now equipped with automatic car identification multi-colored labels.

The GMA ACI study in Chicago revealed that potential savings would be $129,000 per year per railroad if the ACI interchange and information network were installed.

Aside from the study aspect to determine benefits and cost savings, some railroad officers are concerned with immediate benefits. They feel that waiting until the car fleet is 100% labeled and accuracy is close to 1-error-in-10,000 (originally set by the AAR) makes ACI a dream rather than a reality. But Illinois Central, for example, has obtained some immediate benefits from its St. Charles Air Line ACI installation in Chicago. ACI has paid for itself in providing car counting and railroad identification of trains moving through this joint facility. Maintenance costs of the St. Charles Air Line are apportioned among using roads on a wheelage basis. Elimination of personnel to view the moves has been accomplished. Also, IC now finds that the ACI scanning of its inbound trains from its western line provides an advance consist check for the Markham classification yard. As trains do not make pickups or setoffs between St. Charles and Markham, the ACI check provides an accurate advance consist for the yardmaster.

● **Other benefits, too.** Duluth, Missabe & Iron Range, Lake Superior & Ishpeming and Penn Central have ACI-weigh-in-motion scale systems that have reduced operating costs and improved information flow. PC has realized greater savings than its original estimated $470,000 per year.

● **Top management support.** The key to ACI success, notes one industry observer, is top management support in requiring the various departments concerned with ACI to make it work. Support must consist of understanding of the situation and will require approval for expenditures for equipment, planning and implementation.

There is concern about the accuracy of ACI systems, which is based upon performance of various dependent elements—the label, ACI scanner and decoder, communications links, output devices and data-processing equipment. For each of these elements to be installed, operated and maintained by several different departments of a railroad requires exacting system controls to obtain accurate results. As many as four departments—mechanical, signaling, communications and data processing—may be responsible for an ACI system, though on most railroads, only three will be responsible—mechanical, communications and data processing. In any case, close cooperation among the departments will be required to make ACI successful.

Railroads have help in solving their ACI problems. Most active in this area are Sylvania Information Systems and Computer Identics Corp. As manufacturer of the AAR-approved KarTrak ACI system, Sylvania has been concerned that railroads obtain full benefits from ACI. To this end, Sylvania application and transportation system engineers have developed guidelines for making cost/benefit analyses of ACI system applications. Also, they have worked closely with individual railroads in making on-site inspections for ACI installations, as well as implementation studies for ACI.

One Sylvania-developed practical ap-

(Continued on page 79)

SPECIAL REPORT

AAR COMMUNICATION AND SIGNAL SECTION

San Francisco Hilton
September 15-17

AAR DATA SYSTEMS DIVISION

Regency Hyatt House,
Atlanta
September 28-30

- **Programs**
- **Exhibits**
- **Product Showcase**

A service
by the
Simmons-Boardman
Railway Age
Group

Communication & Signal Section Program

San Francisco Hilton Hotel, Sept. 15-17, 1970

Tuesday Sept. 15: Imperial Ballroom

9:00 a.m.—**Address:** R. D. Spence, Vice-President Operations, Southern Pacific.

Address: M. B. Mitchell, Director, Office of High Speed Ground Transportation, Federal Railroad Administration.

Reports: Committees A through G.

Wed., Sept. 16: Imperial Ballroom

9:00 a.m.—Introductions by C. J. Nelson, Second Vice-Chairman, C&S Section.

Report: "Interconnection Tariff," by R. J. Maher, Marketing Supervisor, American Telephone & Telegraph Co.

Paper: "Integrated Circuit Technology and Its Application in Mobile Communications Equipment," by Dr. Theodore Saltzberg, Product Manager Common Carrier Products, Motorola Communications & Electronics, Inc.

Paper: "Telegraph Transmission Over Pulse Code Modulation Systems," by C. G. Webster, Chief Engineer Telecommunications, Canadian National.

Discussion: "Remote Control of Slave Locomotives by Radio," C. O. Jett, Superintendent Communications, Union Pacific.

Wed., Sept. 16: Hilton Plaza

9:00 a.m.—Introductions by R. D. Liggett, First Vice-Chairman, C&S Section.

Paper: "A New Approach to Crossing Signals," by Victor L. Lindberg, Scientific Research Staff, Ceramics & Glass, Ford Motor Co.

Paper: "Railroad Electrification—Its Effect on Signaling and Communications," by G. E. Stinson, Manager Engineering, Signal & Communications Division, WABCO.

Paper: "Relay Code Systems vs. Solid State," by Henry C. Sibley, Research Engineer, General Railway Signal Co.

Discussion: "PMC," by representatives of Marquardt Industrial Products Co., Rock Island Lines, and Southern Pacific.

Thursday Sept. 17: Imperial Ballroom

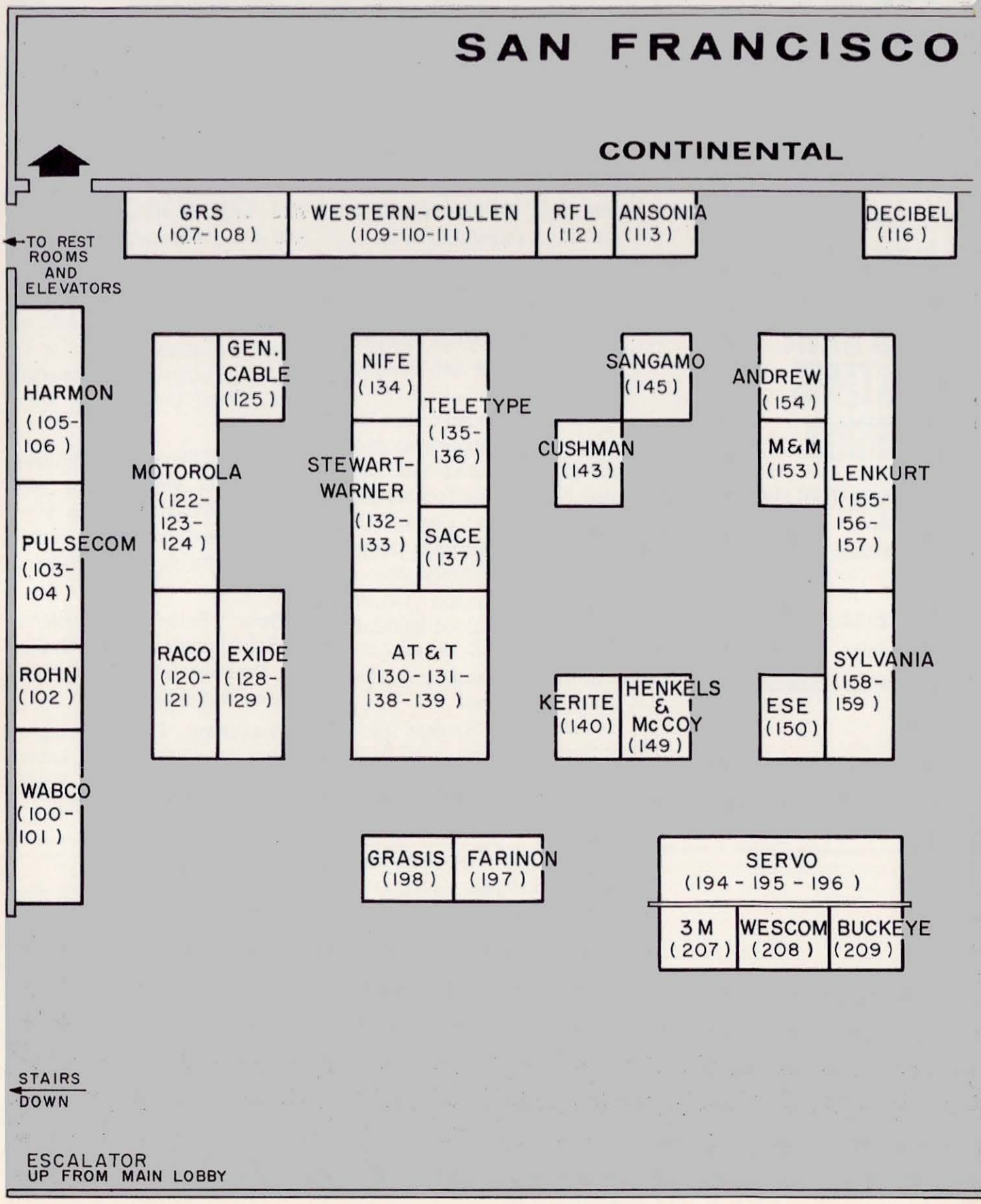
9:00 a.m.—Paper: "Status, Use and Reliability of Automatic Car Identification Scanners," by J. H. Seamon, Senior Industrial Engineer, Missouri Pacific.

Paper: "Status Report on HVDC on Actual Effects on Railroad Communication and Signal Circuits," by R. J. Berti, Electronic Engineer, Union Pacific.

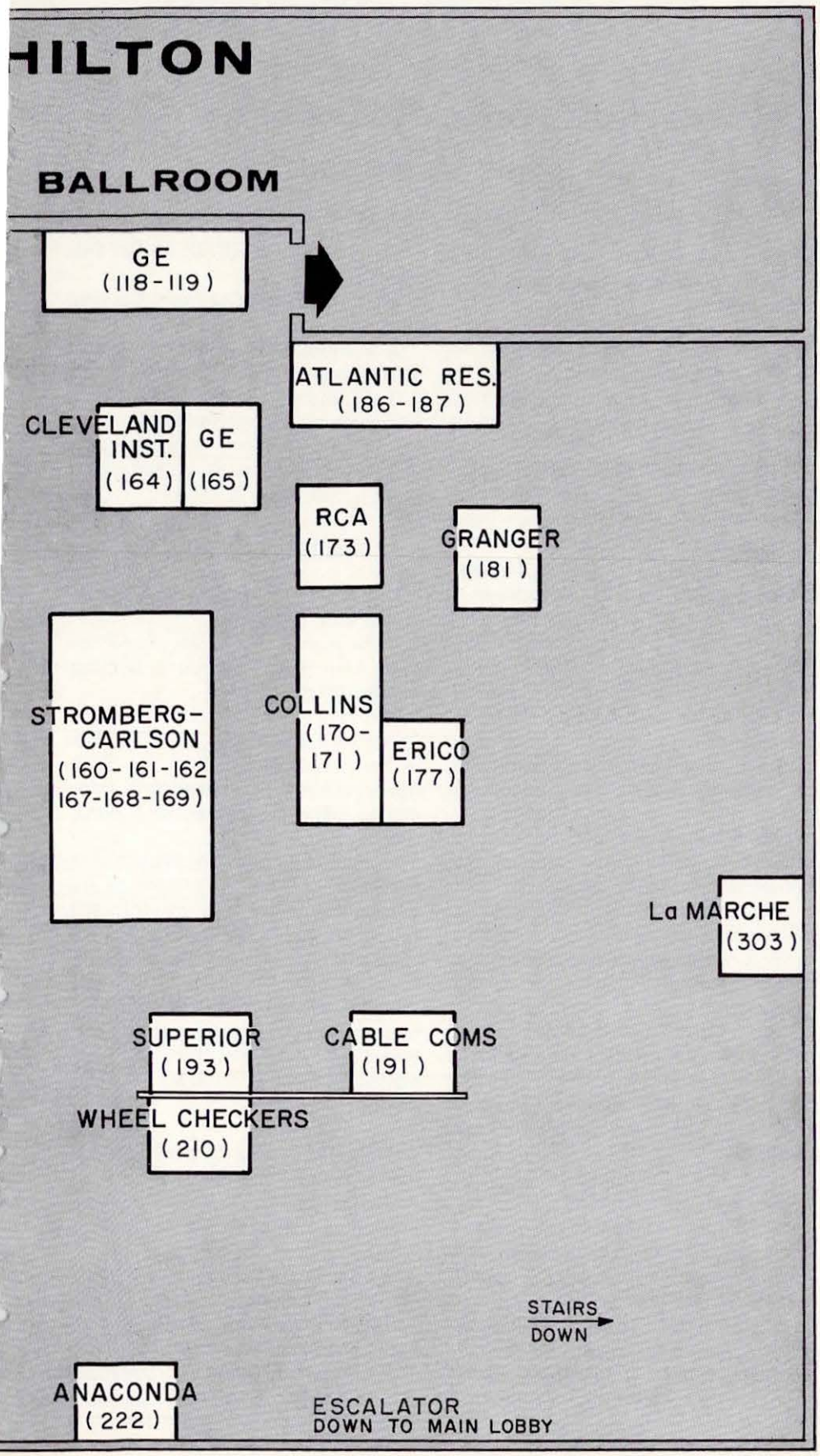
Discussion: "Information Garnered from Hotbox Detectors," by N. C. Pace, Assistant to Vice-President Communications, Southern; and "Hotbox Detectors," by J. M. Hesser, Assistant Manager, Communications & Signals, Norfolk & Western.

Remarks: J. N. Albertson, Chairman, Communication & Signal Section, AAR.

Exhibits of 46 firms will be on



display at C&S annual meeting



EXHIBITORS & (BOOTHS)

Ansonia Wire & Cable Co. **(113)**
American Telephone & Telegraph Co. **(130-131, 138-139)**
Anaconda Wire & Cable Co. **(222)**
Andrew Corporation **(154)**
Atlantic Research Corp. **(186-187)**
Buckeye Telephone & Supply Co. **(209)**
Cable Communication Systems **(191)**
Cleveland Institute of Electronics **(164)**
Collins Radio Co. **(170-171)**
Cushman Electronics **(143)**
Decibel Products, Inc. **(116)**
ESB, Inc. (Exide) **(128-129)**
ESE Limited **(150)**
Erico Products, Inc. **(177)**
Farinon Electric **(197)**
General Cable Corp. **(125)**
General Electric Co. **(118-119, 165)**
General Railway Signal Co. **(107-108)**
Grasis Fabricating Co. **(198)**
Granger Associates **(181)**
Harmon Electronics, Inc. **(105-106)**
Henkels & McCoy **(149)**
The Kerite Company **(140)**
LaMarche Mfg. Co. **(303)**
Lenkurt Electric Co., Inc. **(155-157)**
3M Company **(207)**
M&M Contracting Co. **(153)**
Motorola Communications & Electronics, Inc. **(122-124)**
Nife, Inc. **(134)**
Pulsecom **(103-104)**
RFL Industries **(112)**
Radio Corp. of America **(173)**
Railroad Accessories Corp. **(120-121)**
Rohn Communication Facilities Co. **(102)**
SACE, Inc. **(137)**
Sangamo Electric Co. **(145)**
Servo Corp. of America **(194-196)**
Stewart Warner Electronics **(132-133)**
Stromberg-Carlson **(160-162, 167-169)**
Superior Continental Corp. **(193)**
Sylvania Electric Products, Inc. **(158-159)**
Teletype Corp. **(135-136)**
Wescom, Inc. **(208)**
Western-Cullen Division, Federal Sign & Signal Corp. **(109-111)**
Westinghouse Air Brake Co. **(100-101)**
Wheel Checkers **(210)**

Data Systems meets in Atlanta

Three-day meeting at Regency-Hyatt House features talks, workshops, panel discussions and exhibits of nine firms.

Monday Sept. 28

9:00 a.m.—**Opening remarks** by G. M Leilich, Chairman, Data Systems Division, and Vice-President Operations, Western Maryland.

Keynote Address: "A Look Back, A Look Ahead," by W. Graham Claytor Jr., President, Southern Railway.

Major Address: (To be announced).

Noon—**Luncheon and Address:** Prime F. Osborn, III, President, Seaboard Coast Line.

1:30 p.m.—Concurrent Workshops

No. 1: Materials Data Systems

W. J. Eck, Vice-President Purchases & Materials, Chesapeake & Ohio/Baltimore & Ohio

T. R. Grady, Manager of Materials, Chesapeake & Ohio/Baltimore & Ohio

R. E. Rathert, Manager of Materials, Missouri Pacific

No. 2 Mechanical Data Systems

J. W. Hawthorne, Assistant Vice-President Equipment, Seaboard Coast Line

J. G. German, Assistant Vice-President Engineering, Missouri Pacific

J. A. New, Senior Assistant Engineer, Seaboard Coast Line

No. 3 Terminal Data Systems

P. E. Odom, Vice-President Management Services, St. Louis-San Francisco

No. 4 Engineering Applications

W. W. Simpson, Assistant Vice-President, Engineering & Research, Southern

No. 5 Marketing Applications

P. H. Banner, Assistant Vice-President, Market Research, Southern

P. F. Cruikshank, Assistant Vice-President, Market Planning, Burlington Northern

H. T. Landow, Assistant Vice-President, Planning, Communications & Computer Services, Illinois Central

O. J. Hermann, Jr., Coordinator Traffic Data Services, Southern Pacific

No. 6 Computer Planning in Mergers

J. M. Ostrow, Assistant Vice-President, Systems Development, Penn Central

F. H. Coyne, Vice-President Management Services, Burlington Northern

L. H. Scott, Assistant Vice-President, Systems & Information Services, Seaboard Coast Line

No. 7 Centralized Billing and Collections

R. J. Dullard, Assistant Comptroller, Chesapeake & Ohio/Baltimore & Ohio

No. 8 Data Exchange

R. P. de Camera, Vice-President, Administration, Illinois Central

R. O. Hughes, Director, Management Services, Detroit, Toledo & Ironton

J. L. Jorgensen, Director, Management Information Services, Union Pacific

S. A. Alward, Director, Management Information Services, Louisville & Nashville

G. Pipas, Vice-President, Communications & Computer Services, Illinois Central

No. 9 ACI in a System

R. H. Tivy, Assistant Chief of Transportation-Planning, Canadian National

R. Cass, Senior Research Engineer, Canadian National

J. H. Seamon, Senior Industrial Engineer, Missouri Pacific

J. W. Barriger, Jr., Manager, Market Development, Sylvania Information Systems

No. 10 Impact of TRAIN on Car Distribution

W. H. Van Slyke, Chairman, Car Service Division, AAR

J. J. Willis, General Superintendent of Transportation, Southern Pacific

D. A. Baumgartner, General Superintendent of Transportation, Santa Fe

W. B. Vander Veer, General Superintendent Transportation, Chesapeake & Ohio/Baltimore & Ohio

Tuesday Sept. 29

8:30 a.m.—**Panel Discussion—Lesson of the 60's**

Moderator: F. H. Coyne, Vice-President, Management Services, Burlington Northern

"Lessons Learned About Computers, Hardware and Software, and Their Use in the Railroad Industry," by S. A. Alward, Director, Management Information Services, Louisville & Nashville

"Developments and Applications in the Fields of Operations Research and Industrial Engineering," by P. B. Wilson, Chief of Cybernetic Research and Industrial Engineering, Canadian National

"Application of Data Systems Techniques from the Railroad Point of View," by G. S. Sines, Director, Information & Control Systems, Missouri Pacific

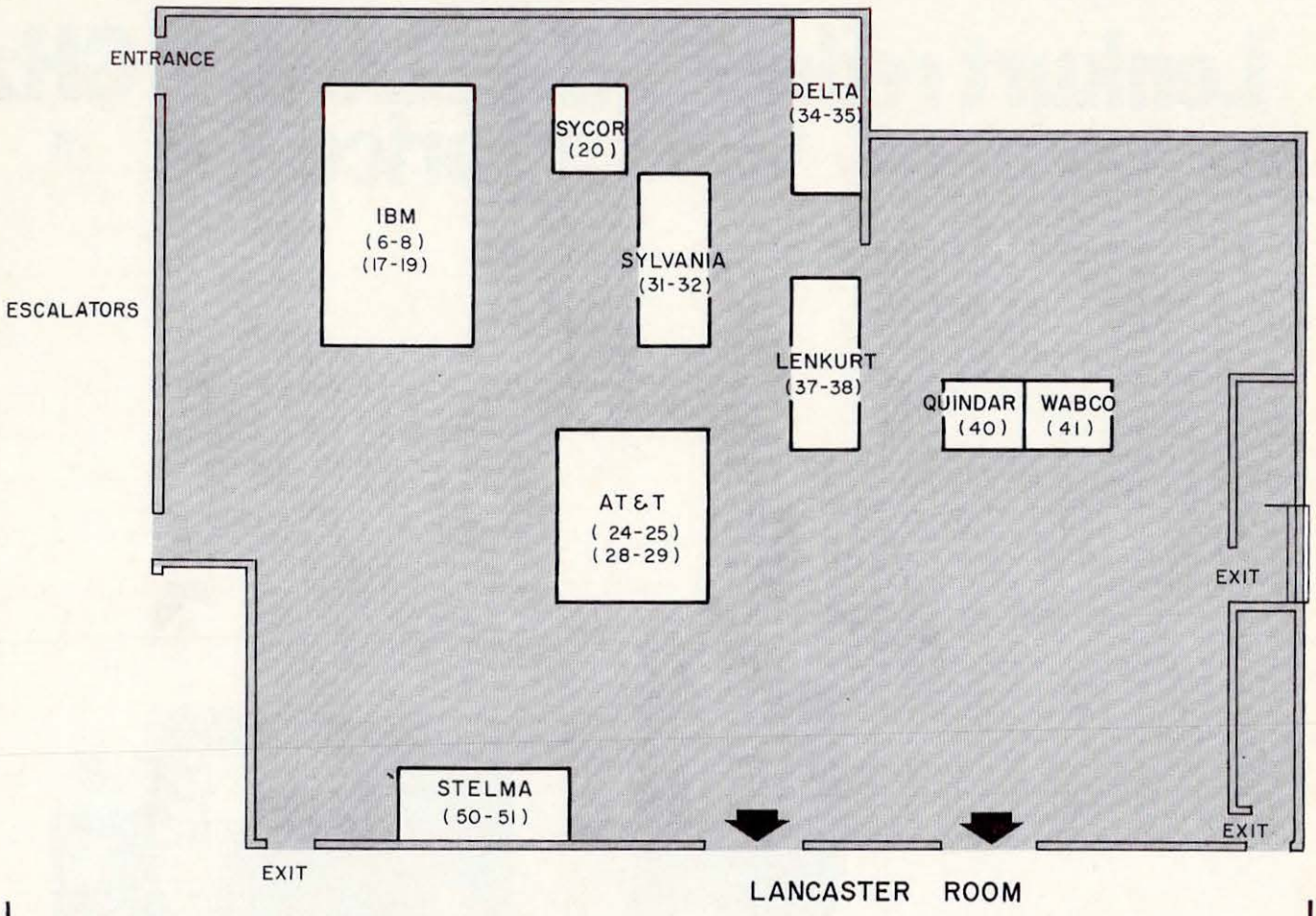
Panel Discussion: "A Look Ahead to the Systems of the 70's

Moderator: R. C. McGowan, Vice-President Planning, Chesapeake & Ohio/Baltimore & Ohio

"Planning Large Communications/Computer Networks," by R. R. Crane, Group Vice-President, Science Management Group, WOFAC

"A Centralized Computer/Communications System," by J. W. Germany, General Manager—System Manage-

REGENCY HYATT HOUSE - ATLANTA



Nine exhibitors have a wide range of products including computers, communications equipment, and automatic car identification. Also of interest to DSD members attending the annual meeting are consulting, software and programming services available from manufacturers.

American Telephone & Telegraph Co. **(24-25, 28-29)**
Data Products Stelma Telecommunications **(50-51)**
Delta Data Systems **(34-35)**
IBM Corporation **(6-8, 17-19)**
Lenkurt Electric Co., Inc. **(37-38)**
Quindar Electronics, Inc. **(40)**
Sycor, Inc. **(20)**
Sylvania Electric Products, Inc. **(31-32)**
Westinghouse Air Brake Co. **(41)**

ment Services, Southern Pacific

"Distributed Computer/Communications Capability," by H. N. Laden, Assistant Vice-President Research, Chesapeake & Ohio/Baltimore & Ohio

12:30 p.m.—**Luncheon and Address:** Thomas M. Goodfellow, President, Association of American Railroads

2:00 p.m.—**Group Tours**
1—Southern Railway System
2—Carlings Brewing Company

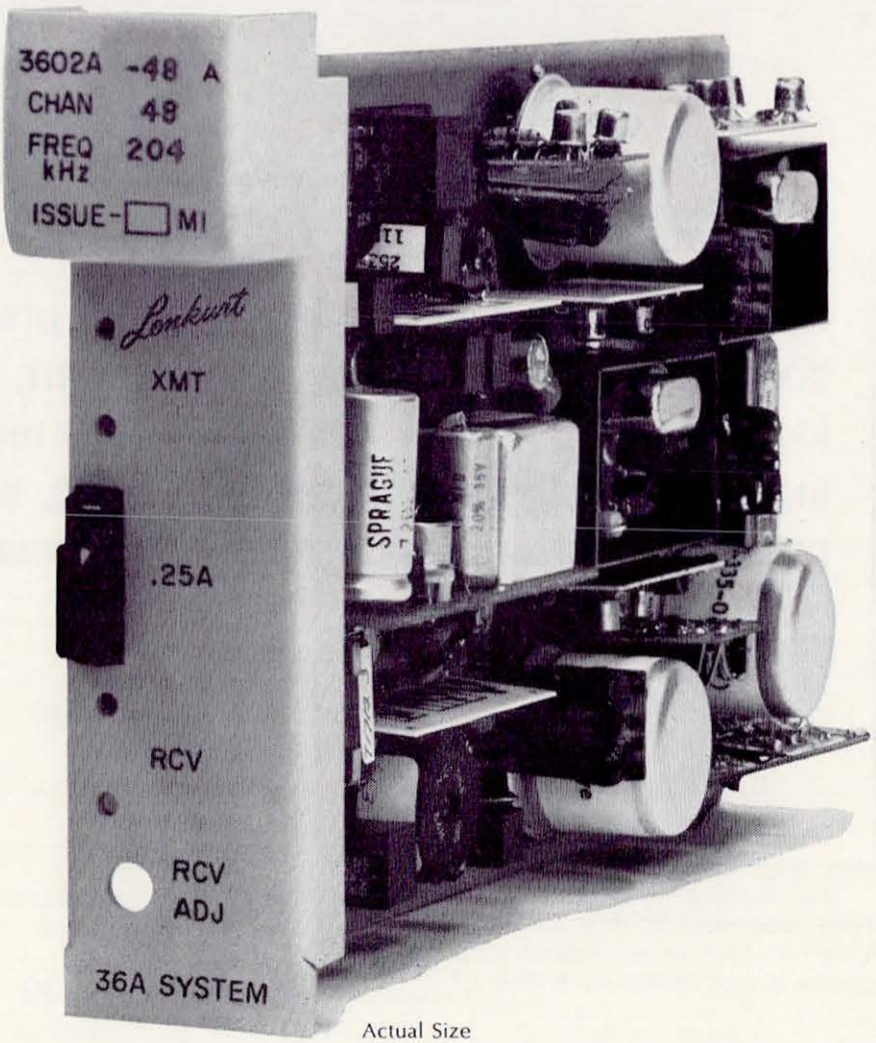
Wednesday Sept. 30

9:00 a.m.—**Address:** Commander Grace Hopper, Director of Navy Programming Languages Division, Office of Information Systems Planning & Development, Department of the Navy

Progress Report "Latest Developments Concerning ACI, UMLER, TRAIN and Other Items of Immediate Division Interest," by R. A. Petrash, Executive Director, Data Systems Division, AAR

12:30 p.m.—Get-Away Luncheon

Lenkurt reduces the size of 2 GHz
" " " price " " "



Actual Size

radio and low density multiplex.

Our new systems are by far the most compact, most economical you can buy.

The 36A, 48-channel multiplex is one-third the size of any comparable domestic unit. One duplex channel, complete with signaling, fits on a single card. And since each card is a self-contained, one channel system there is no need for expensive common equipment.

We get a duplex channel on a single card by using our 1-cubic inch, polylithic crystal filters. In addition, these filters make it practical to use the latest integrated circuitry to reduce size, price and maintenance problems. We've applied for patents on the manufacturing process of these filters, so nobody else is likely to have them for quite awhile.

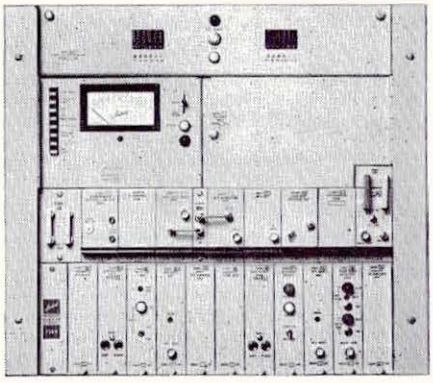
The 78F2 600-channel 2GHz radio is the smallest on the market, yet simple to service. The all solid-state transmitter and receiver are combined on a single shelf. And built-in test facilities will keep costs down by reducing all routine maintenance to a 5-minute job.

Compare the specs and prices on our systems with everybody else's, then give us a call: Atlanta (404) 261-8282 — Chicago (312) 263-1321 — Dallas (214) 363-0286 — Falls Church (703) 533-3344 — San Carlos (415) 591-8461.

Or write: Lenkurt Electric Co., Inc., Dept. C720, 1105 County Road, San Carlos, California 94070, for complete literature.

Lenkurt 36A 48-channel Radio Multiplex single channel stackable — 12 channels (three mounting spaces high) on a 19" rack — channels are identical except for small plug-in channel selection oscillators, so one channel (less oscillator) is all the "spare parts" you need — operates directly from 24 or 48 volts with 17-18 dBrncO noise — built-in E&M signaling.

Lenkurt 78F2 600-channel 2 GHz Microwave Radio 5 watt power output — operates directly from 24 or 48 volts — 8 dB receiver noise figure — 18 dBrncO/hop noise performance — a duplex system with baseband and power distribution equipment takes up only 10 mounting spaces on a 19" rack — push-button monitoring of power output, deviation, transmitter frequency and receive signal level — built-in alarms monitor power output, off frequency, receive signal level, transmit pilot and operation of hot standby switch.



78F2 Microwave System

LENKURT ELECTRIC
GENERAL TELEPHONE & ELECTRONICS

Circle 3 on reader service card

PRODUCT SHOWCASE

Video I/O terminal works with computer (101)

The new video terminal receives input data from a computer, permits introduction and editing of data from the keyboard and provides necessary storage of this character display data on the CRT screen, and for data transmission.

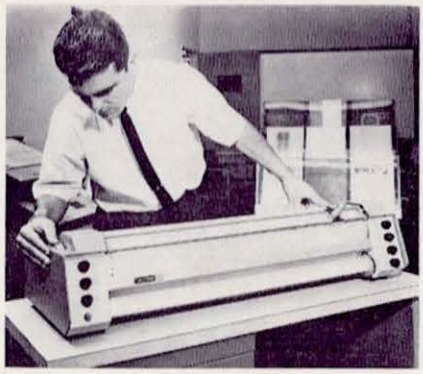
Half and full-duplex data provisions are available. Operating in asynchronous or synchronous serial mode, input and output rates can range from 75 to 9600 bps. In parallel mode, rates range up to 15,000 characters per second. The ADS-760 can operate as a single Teletype replacement or as a high speed information retrieval device or anywhere in between.

Two video outputs are provided on identical but separate remote monitor circuits. An optional split screen permits such inquiry/response and/or form filling operations. Display formats range from 4 lines of 32 double size characters (128 total characters) to 30 lines of 80 single size characters (2400 total characters). The standard character repertoire contains upper case "A" through "Z", "0" through "9" and punctuation marks. Optional character sets include both an upper and lower case alphabet, superscript/subscript capabilities and special symbols for graphic generation capability. *American Data Systems.*

On-line terminal provides I/O to a computer (102)

The TC 500 on-line terminal is a unit that can provide data input and output to a central computer system. It can also provide editing, formatting and shared processing. The TC 500 is a solid state computer with its own compact memory, powerful logic and full arithmetic capability. The internally stored program provides complete local control of processing, print formatting, printer positioning, and forms movement. Its buffering assures maximum operating simplicity and productivity, and line speed transmission of larger, more complete messages.

The TC 500 permits complete data input through its electronic alphanumeric typewriter and numeric ten-key keyboard. Also, this terminal can handle input/output via punched cards or punched paper tape. Also, the TC 500 can transmit up to 1800 bits per second. *Burroughs Corp.*



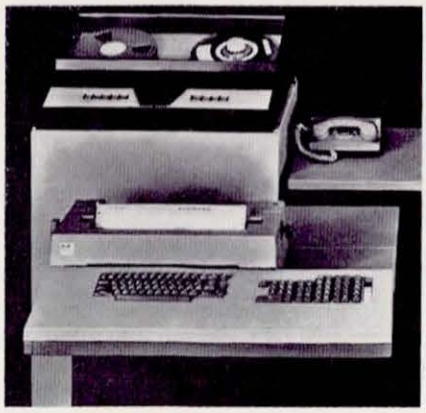
Digital plotting system works from computer (103)

A series of digital plotting systems provide a means of producing ink on paper or microfilm plots of computer output data. There is no restriction on format, so that a pictorial representation may include any desired combination of axes, lines, letters and symbols, with unlimited choice of scale factors, letter and symbol sizes and printing angles. Three model series of electromechanical ink on paper digital plotters use either 8-vector structure or 24-vector structure commands.

Either drum or flatbed type plotters are available. Drum type plotters are available in two sizes: a 12-inch drum and a 30-inch drum. The plot is produced by rotary motion of the drum and lateral motion of the pen carriage. Either ballpoint or liquid ink pens may be used. The drum type plotter uses special chart paper rolls and can produce continuous plots up to 120 ft in length. Flatbed plotters are available in 31 x 34" and 54 x 72" plot area. *California Computer Products Inc.*

Magnetic tape unit handles data at 2400 wpm (104)

The 4210 magnetic tape terminal functions just like a paper tape punch and reader except the 4210 uses magnetic paper cartridges. It can handle data distribution and collection at speeds up to 2400 words per minute. It automatically switches to the receive mode on completion of transmission. For error correction, a single spacing control permits moving the tape in forward or reverse direction one character at a time. The correct character is then recorded over the erroneous one. To locate data the tape can be searched at the rate of 400 characters per second, either forward or reverse. *Teletype Corp.*



I/O unit interfaces with computer or is free (105)

The 820/03 terminal can interface with any other computer or terminal device or act as a free-standing system with full computer capabilities. It is complemented by a full range of peripherals—card, paper tape and magnetic tape input/output devices.

The 820/03 provides audited, edited and formatted data. Both vertical and longitudinal parity checking are used. Errors are detected and corrected at the source before transmission. It generates any five to nine level code configurations. Transmission speeds are 50 to 2400 baud, synchronous or asynchronous.

By interconnecting a number of 820/03 terminals with one 820/51 communications control unit and up to two 820/56 magnetic tape units, a data collection system is created. Interconnections between the 820/03 terminals and the control unit is via direct cable or telegraph/telephone lines. Up to 16 terminals can be direct cable-connected with a maximum cable length of 600 ft. Eight terminals may be connected simultaneously in a telecommunication environment. *Business Machines Group, Victor Comptometer Corp.*

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This train has no driver. And no track.

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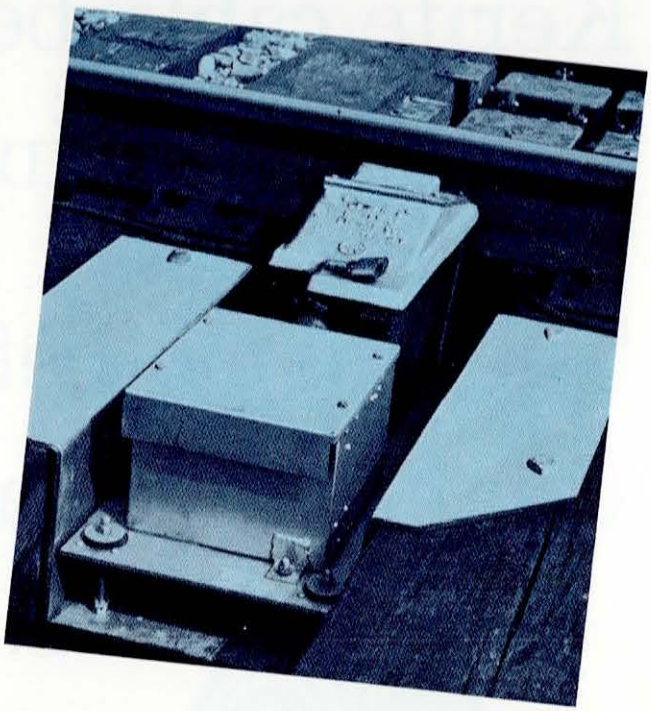
New ... from GRS



FSO

Frequency Shift Overlay track circuits for highway crossing protection — fail safe, high immunity to noise and interference. Fifteen frequencies, all compatible; five mounting options. FSO superimposes directly on a-c, d-c, or coded track circuits — no costly insulated joint installation.

WTSU

Wheel Thermo-Scanner Unit for hot box detection focuses on the wheel hub — where it counts. Automatically calibrates its accuracy every 60 seconds. Immune to hot sun, it stays in adjustment. Effectively detects at speeds of 5 to as high as 120 mph. Bidirectional operation makes it ideal for single track.

See the GRS Exhibit — Booths 107 and 108, A.A.R. C&S Section annual meeting, San Francisco Hilton September 15-17

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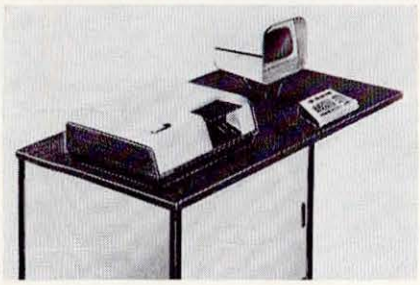
3513

PRODUCT SHOWCASE



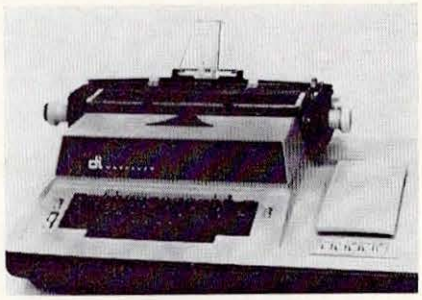
OCR device processes up to 1800 units/hr (106)

A complete, compact optical character recognition system unit ROCR System/70 can process up to 1800 documents per hour in-house or from remote scanners. The ROCR System/70 consists of the standard Cognitronics remote desktop scanner with automatic feed, a display console and keyboard, and a central processing unit.

The Unit ROCR System/70 is so easy to use that any qualified keypunch operator can learn to operate it in a single day. The system features on-site or remote scanning—the Unit system can switch its input from the local or remote scanner, as desired. Multiple standard numeric fonts may be used and may be intermixed as well on the same document. Likewise, machine generated and handprinted numeric characters may be intermixed. Any character unrecognized by the system are displayed on the console and are quickly identified and inserted by the operator by simply depressing the appropriate character on the keyboard. *Cognitronics Corp.*

Computer controls input from keystations (107)

A computer-controlled keyboard input system called CMC Key Processing, allows source data to be entered via up to 32 individual keystations. The data is processed by the system's mini-computer and then transferred to a magnetic storage disk, where the batches of work are written, verified and corrected. On command, the batches are transferred, in sequence, to one single reel of magnetic tape which becomes clean input to the main computer system. *Computer Machinery Corp.*



Transmitting typewriter works on phone lines (108)

Using the new Dataplex T30 recording transmitting typewriter, it is now possible to prepare business data at remote locations and conveniently and economically send it over voice-grade telephone lines for computer processing. The T30 operates as an ordinary office electric typewriter but has the capability to record all typed information on an internal magnetic-tape cassette recorder for later transmission via telephone lines.

The T30 operates in several modes, controllable by a return signal from the receiving station, which allows it to send data continuously and hang-up after all data has been correctly received. If transmission errors occur, the T30 will partially rewind its cassette and retransmit the same data—eventually clearing the error, passing over it if it is persistent, or terminating transmission if line quality causes errors that are numerous and persistent. Input power is 115 volts AC, 60 Hz, 85 watts. *Data Instruments Co.*

Send-receive data terminal meets EIA interface (109)

The PDM 6633 ASR is an automatic-send-receive data terminal with a photo-electric paper tape reader and solenoid array perforator. The unit has an impact printer with 132 print positions and prints 64 ASC11 characters. The PDM 6633 uses either carbon or cloth ribbon cassettes and provides clean high fidelity copy.

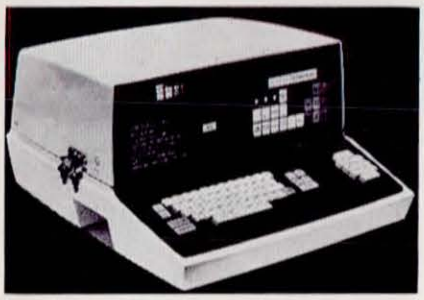
The PDM 6633 operates 10, 15, or 30 characters/second and has a wide, 132-character carriage for maximum throughput. The terminal is fully compatible with EIA Standard RS-232B interface. Transmission code is USAC11 and the terminal will operate in a full or half-duplex mode. The ASR version has a 30 character/second paper tape reader and punch; other options include a 10-key numeric nest similar to an adding machine format, internal modem and various message controls and indicators. The PDM 6633 is also available as an RO (receive only unit) and a KSR (keyboard send-receive unit). *Peripheral Data Machines, Inc.*

Portable data terminal works with computer (110)

A portable computer-communications terminal travels in a briefcase for traffic managers, freight salesmen and transportation engineers who need instant access to the company's computer located some distance away. The new interactive terminal, called PortaCom, can be hand carried in an attache case anywhere. It weighs less than 30 lb with all options.

PortaCom produces full-page computer printout with up to three carbon copies. For instant computer access, the PortaCom has its own built-in acoustic coupler. It needs only a standard power outlet and a telephone to begin operating. PortaCom has a standard ASCII keyboard and is Teletype compatible. *Data Products Corp.*

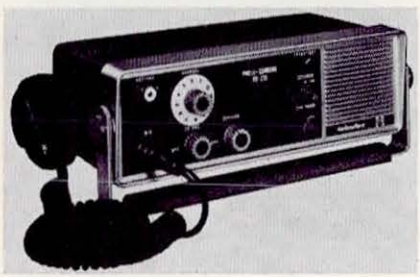
PRODUCT SHOWCASE



Remote data terminal has CRT display (111)

A new remote data terminal has large CRT character size, total capacity of 1,024 displayable characters, and a special feature which permits the operator to concentrate on any 32-character by 8-line segment of the total display by "rolling" the display up and down like paper in a typewriter. Another important feature is direct "natural conversation" communications between the operator and the computer.

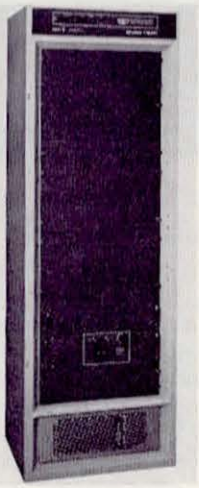
A number of peripheral devices have been designed to operate with the Computerminal, including the alphanumeric keyboard, alphanumeric line printer, remote CRT monitor, several discrete displays and a telephone data-set interface. *Wyle Laboratories.*



Two-way radio has twelve channel capability (112)

A new all solid-state, 30 watt FM-2 way radio with 12 channel capability for mobile, portable and base operations in the 132-174 MHz frequency range is called "Porta Command." Model PC-230 measures only (HWD) 3½" x 10½" x 6¾". The unit operates from an external 13.8 volt nominal power source. It is also easily convertible to 117/220 volt AC operation.

The PC-230 operates in a range of −30°C to 60°C with ±.0005% frequency stability in narrow band and ±.0015% in wide band. Sensitivity is less than 0.5 microvolt for 20 db quieting with residual hum and noise down more than 50 db with standard modulated input. The PC-230 will operate efficiently on up to 12 channels within a 600 kHz range without any performance degradation. High performance on 12 channels throughout a 1 MHz range can be accomodated with no power loss and less than 3db degradation in sensitivity. *Hallicrafters Co.*



ACI system reads AAR approved labels (113)

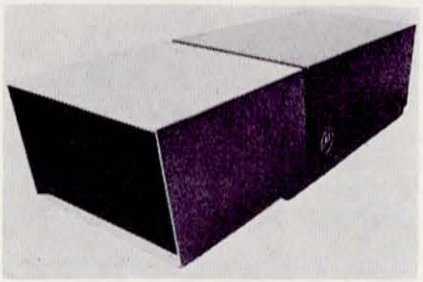
The VC-1 automatic car identification system provides a means of automatically identifying railroad vehicles, trailers and containers carrying the AAR-approved color-coded ACI label. The ACI system scans the label, decodes and transmits the label identification information. It can transmit the information directly as it is being read, or it can be stored internally, outputted on demand or polled by a control center, such as a computer.

The transmitted output can be fed directly into a computer for storage; used to operate peripheral devices, such as teleprinters or card punch machines; used in process control, such as in automatic classification yards; or transmitted in communications systems such as teleprinter, telephone or microwave. *Signal & Communications Division, WABCO.*

Binary synchronous unit works with mag tape (114)

The new 7201 Binary Synchronous Communications Adaptor sends from or receives on magnetic tape. The basic 7201 system consists of the 7201 adaptor and a Mohawk data-recorder with a special interface feature. An optional 7520 printer can, under operator or remote control, monitor data being written on tape, print data that is not being written on tape, or idle. And, of course, the data-recorder and printer can function offline for enter, verify, search and print operations.

The 7201 can operate on a net with 360's, 2780's and other 7201's. A data-recorder can be used for data entry one minute and used to transmit the data to a central computer the next. *Mohawk Data Sciences Corp.*



TV camera uses light amplification (115)

Without a single adjustment, the new closed circuit television camera provides a minimum of 500 lines horizontal resolution between 0.05 foot candles scene illumination (similar to moonlight conditions) and 8,000 foot candles (the equivalent of bright sunlight). The camera has a specially designed 10:1 zoom lens, and one-year warranty on all parts and labor.

The exceptional flexibility of the new camera is due to the method Motorola developed to bond the image intensifier to the fibre optics faceplate of the vidicon tube, and to the attenuation technique which significantly improves camera reliability by providing optimum protection of the vidicon in exceptionally high illumination situations. *Motorola Communications & Electronics Inc.*

Self-teaching techniques featured in courses (116)

Tailor-made courses for railway signaling and communications departments to meet specific training objectives feature self-teaching lessons. Exclusive Auto-Programmed lessons simplify employee studies, speed the learning process, and insure maximum comprehension. Special discounts are available to companies under Participating Education Plan. *Cleveland Institute of Electronics.*

Let V/I* be your umbrella.

You know what can happen when moisture gets into railroad communications cable. Circuits fail. Schedules go out the window. Shipments are lost. You know the rest.

General Cable's new V/I (Vapor Impervious) communications cable construction is designed to avoid all that.

A thin metallic barrier acts as the moisture shield without significantly adding to the weight or diameter of the cable. The barrier is supported and protected by layers of special polyethylenes on both sides. The entire V/I component is formed about the cable core with the edge heat-and-pressure sealed along its entire length. It is available on both Qualpeth and Stalpeth types.

If you'd like to find out more about General Cable's V/I cable, contact us. It just might help you keep things running smoothly. Write to: General Cable Corporation, Section 600-25, 730 Third Avenue, New York, N.Y. 10017.

General Cable

*V/I is General Cable Corporation's trademark for its Vapor Impervious communications cable. U.S. Patent 3,206,541.

PRODUCT SHOWCASE

Coaxial system handles up to 1260 channels (117)

Coaxial transmission systems providing 120, 300, or 1260 voice channels feature four-kHz voice channels or combinations of voice channels and broadband data within the carrier spectrum.

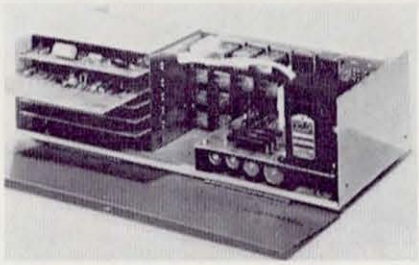
CCS 120 coaxial cable transmission provides 120 voice channels in the spectrum from 60 kHz to 552 kHz. Repeater spacing is 7.4 miles on either buried or aerial cable. Repeater gain is 46.6 db at 552 kHz. The CCS 300 transmission system provides 300 two-way telephone channels or equivalent for 4 kHz bandwidth in carrier spectrum from 60 kHz to 1300 kHz, divided into five 240 kHz supergroups, each supergroup carrying 60 channels. Repeater spacing is 3.7 miles. Repeater gain is 36.0 db at 1300 kHz. The CCS 1260 system provides 1260 4kHz telephone channels or equivalent bandwidth, between 60 kHz and 5564 kHz divided into 21 60 channel supergroups. Repeater spacing is 1.85 miles with a repeater gain of 37.6 db at 5636 kHz.

Transmission system cable consists of two, or multiples of two, coaxial pairs and a variable number of single or paired conductors which are surrounded by various jackets and sheathing which permits the cable to be directly buried or can be spun onto a pre-installed messenger along an existing pole line. *Cable Communications Systems Inc.*

System has voltage and frequency control (118)

The P-1000 automatic power system provides voltage regulated and frequency controlled power for computer and other complex electronic systems needing continuous regulated power. Output voltage to the computer is constantly monitored by a graphic voltage recorder and is set to meet computer manufacturers' recommendations. Maximum output frequency variation is ±0.5% with a ±.5% variation in power supply. (This can be reduced to ±0.05%). Maximum output variation is ±2% which could be reduced to ±1%.

Instrumentation indicating input and output supply is standard equipment including the graphic voltage recorder. Sizes available are incremental to 3,000 KVA and the P-1000 system can be provided in multiples up to 5,000 KVA. The P-1000 APS system functions while normal power sources are operating or when interrupted. It is completely automatic and requires no personnel to operate the system. The P-1000 APS removes spikes, dips and most harmonics from incoming power and reconstructs the wave form into clean power. Key units in the system include motor generator sets, batteries, voltage regulator, automatic start and transfer equipment, among others. *Continuous Computer Power Inc.*



Automatic number dialer handles six numbers (119)

The Telemat automatic number dialer is intended for applications where certain telephone, Telex or TWX numbers are frequently called. The unit dials up to six 11 digit numbers, initiated either by an associated push button pad or relay contact closure. All six numbers can be dialed simultaneously or in sequence. The unit is completely self contained and utilizes integrated circuit logic for maximum reliability. In case of a Busy signal, the unit resets instantaneously. The unit can be arranged for tone-dialing, optional.

This unit responds to computer commands to dial, and gives acknowledgment signal when remote station is on-line. *Kameco Electronics Ltd.*

Long-life battery uses KOH electrolyte (120)

An industrial nickel-cadmium battery designed to last almost a third of a century has potassium hydroxide as the electrolyte which has no corrosive effect on metal parts and instead acts as a preservative. The liquid level of the electrolyte can be visually checked because the container is translucent polystyrene.

Evaporation and carbonation of the electrolyte are controlled by a layer of pure mineral oil resting on top of the solution to reduce maintenance requirements. This nickel-cadmium battery can go as long as two years or more without adding water. It is not damaged by freezing and will perform at extremely low ambient temperatures when necessary.

In operation, the battery can produce high discharge surges even when in a partial state of charge. On open circuit, there is almost complete chemical inertness within the cell, minimum loss of charge and no gassing. The battery is designed to regularly provide high discharge rates and to accept high recharge rates. *Exide Power Systems Division, ESB Inc.*

Distribution cables handle 600v to 35kv (121)

A four-page bulletin describes cables for power distribution service from source to load—into plant, intraplant, and interplant. Typical installations are illustrated. Specification detail shown with typical designs from 600 volts to 35kv. Terminations for indoors and outdoors are also shown. *The Kerite Company.*

Dispatcher signaling uses tone selection (122)

An innovation in dispatcher signaling, permits the use of all types of voice transmission circuits, while retaining the traditional selector keys and selectors.

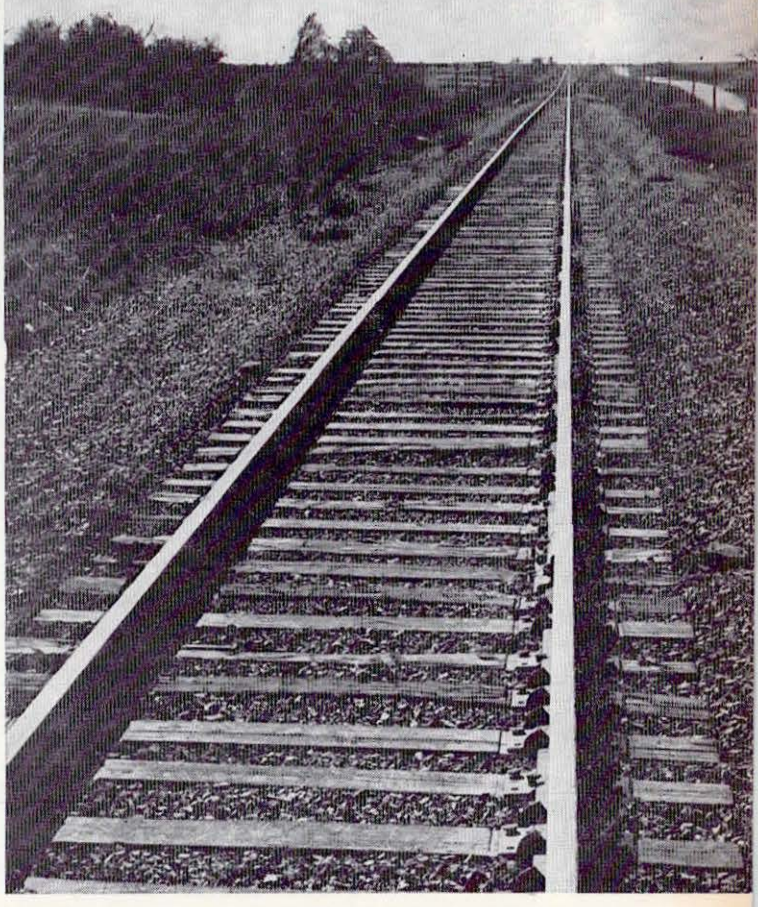
Electro-mechanical selective ringing, with its pulses of high voltage direct current, has been limited generally to either dispatcher's or message circuits over open wire or railroad owned cable. Tone-pulse selective calling takes advantage of installed dispatching telephone equipment in the form of type No. 62-A or No. 63-A selector keys and type No. 60-AP or No. 60-BP selectors.

By converting the output of selector keys to shifting audio tones and reconverting the tones to reversing pulses of direct current at each waystation.

A new tone pulse receiver TPR-2 operates from 12 volts DC. Output to the selector is 12 volts which requires modification of the No. 60 type selectors. The manufacturer suggests return of the selectors for conversion. This involves change-out of selector coils to 12-volt windings, strapping the capacitor and arrangment of wiring to provide an answer-back tone in the usual manner, bypassing the receiver. *Plat-General.*

SAFE
This stretch wasn't long enough!

UNSAFE
This stretch may be too long!



Our new rail-mounted SERVOSAFE® Hot Box Detective™ prevents axle burn-offs and derailments.

It's a good thing to have on your railroad.

But, for safety's sake, don't stretch a good thing!

Do you have long stretches of track without SERVOSAFE protection?

Recent studies have revealed that such factors as heavier car loadings, faster train speeds and greater accelerations have combined to increase the incidence of overheated journal boxes. This has prompted many railroads to review their spacing of hot box detectors. Up to now, the average spacing has been 25 to 30 miles apart along line-of-road. Under today's conditions, however, a hot box can develop in less than 25 miles and cause a derailment *between* detectors.

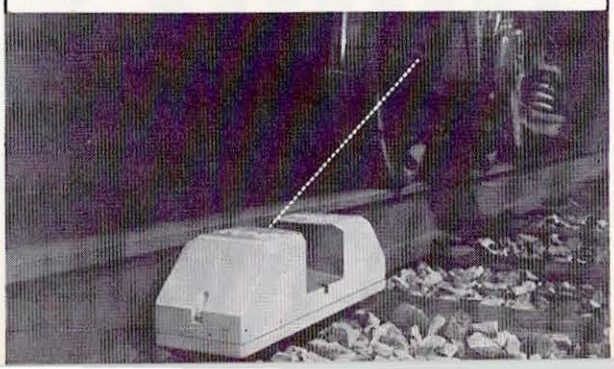
One solution becomes self-evident: closer spacing of hot box detectors for more protection. A SERVOSAFE system will not prevent a hot box—but it will detect, locate and warn of a hot box before the condition worsens into a dangerous, costly axle burn-off and derailment!

Will it cost you more to get this additional SERVOSAFE protection? Not really. Here are some reasons why not:

Our new Model 8808 SERVOSAFE system features patented rail-mounted scanners and solid state electronic data processing for the fastest, most precise detection of hot boxes. It allows remedial action to be taken *before* a failure occurs, and helps cut down the high costs of major salvage or replacement. The cost of installation and maintenance is appreciably reduced by eliminating the need for concrete foundations, special ties and expensive roadbed preparation. The rail-mounted scanner can be easily removed for maintenance or relocation. Finally, compare the cost of a SERVOSAFE with the $200,000 involved in just one derailment that could be prevented.

That's why most prudent, progressive railroad managements agree when we say, "More SERVOSAFE protection isn't costly—*lack of it is!*"

Model 8808 SERVOSAFE Hot Box Detective Rail-mounted scanner "looks" at journal bearing behind truck frame with a vertical, close-in target scan for greater uniformity and accuracy. Scanner is securely clamped to the rail (no drilling required). Accuracy is not affected by rail pumping, running or lateral movement.



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Since 1957, more than 1,000 SERVOSAFE Hot Box Detective systems have been put into service on 54 of the world's major railroads, and have compiled an unequaled record of safety improvement and cost reduction.

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Who needs you? We do!

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Signal wire and cable
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Complete Inventories. Fast Delivery.

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Circle 9 on reader service card

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High And Wide!

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PHONE: Area Code 303 . . . 722-2026

Circle 10 on reader service card

PRODUCT SHOWCASE

Snow melter has oil burner unit (123)

A new snow melter solves the snow problem before it turns to ice by producing a contained atmosphere of hot air (the entire distance between the switch point and stock rail) to vaporize the snow before it makes contact, and does the job completely without open flame.

The Raco snow melter is similar in operation to a conventional oil burner. While the flame is safely contained in a combustion chamber, the hot air (approx. 400°F) is discharged through two nozzles located inside of both stock rails approximately 20" in front of the point. Velocity of the air is 45 mph at a volume of approximately 5500 cu ft/min. (Figures will vary with ambient temperature, air density, wind and fuel quality).

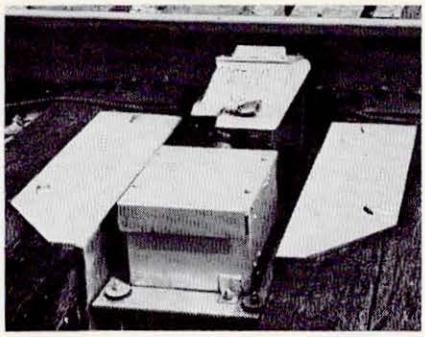
For yard and interlocking locations the unit is manually activated from a control point wherever the switch is visible. For remote switch locations in block signaling or CTC territories, the Raco snow detector is used to start the snow melter in operation. *Railroad Accessories Corp.*

Microwave system has high channel capacity (124)

The new microwave systems, designated the type 75B2 for the band 6.425 to 7.125 GHz and type 75E1 for the band 12.2 to 13.25 GHz, will transmit up to 1200 voice-frequency channels or a video signal on long-haul, backbone routes of 2,000 miles or more. Quality performance is assured because of their high power output coupled with their arrange-

ment as low-noise heterodyne repeaters. Systems are fully solid-state with a traveling wave tube serving as the transmitter power amplifier.

In addition to optional path protection arrangements, two service channels, a video clamper and monitor, and a choice of three program channels are also available. *Lenkurt Electric Co., Inc.*



Hotbox detector views wheel hub (125)

The improved Wheel Thermo Scanner Unit has a single scanner on each side of the track which scans wheels passing in either direction at speeds from 5 to 85 mph. This wide range can be extended to 120 mph by reducing the output pulse width. A protective door on the radiometer closes when trains are not being scanned. An internal shutter ensures that the cell views only its intended target. An internal blower helps prevent the entry of dirt when the protective door is open.

As each train wheel passes the selected scanner wheel detector, the radiometer cell's internal shutter opens for 4 milliseconds, taking a "heat snapshot" of the passing wheel. Heat, radiated from the wheel hub, is focused on the lead selenide detector, where it instantly produces a voltage pulse proportional to the highest temperature scanned on the passing wheel. This voltage pulse is amplified and added to a wheel marker pulse which was produced when the wheel was detected. The sum of these two pulses is fed to a recorder (either directly or by carrier) where it appears as a deflection on a chart. An amplified deflection therefore is an indication of a hot wheel hub.

After the last car of the train passes, the blower stops, the protective door closes, and the cell takes one reading from the internal reference target (on the back of the protective door) which is heated to the temperature of a hotbox. The pulse from this reading is registered on the recorder chart, and then the recorder stops. The operator is thus assured that the system was operating properly and capable of detecting a hotbox. *General Railway Signal Co.*

Patch cords have single or double conductor (126)

Single and double conductor braided patch cords, in lengths from 1-6 ft are now available in standard colors. When ordering braided cords, however, the suffix "B" should be used, following the catalog ordering number and length of cord desired. *Western-Cullen div. Federal Sign & Signal Corp.*

Line voltage variations detected by unit (127)

PowerGuard is designed to detect and give warning to the computer user of line voltage variations caused by any type of power system disturbance. The unique automatic trigger design of PowerGuard allows months of information to be recorded on a single strip chart. The recording interval begins when a transient occurs and ends with the reset signal which can be either manually or automatically generated. The activation of the "Auto Reset" button places PowerGuard in a fully automatic mode; any transient starts the recorder, displaying the amplitude and duration of the activating transient. If no additional transients occur within 60 seconds, the recorder stops and PowerGuard returns to its "monitoring only" mode. *Western Union Computer Utilities Inc.*

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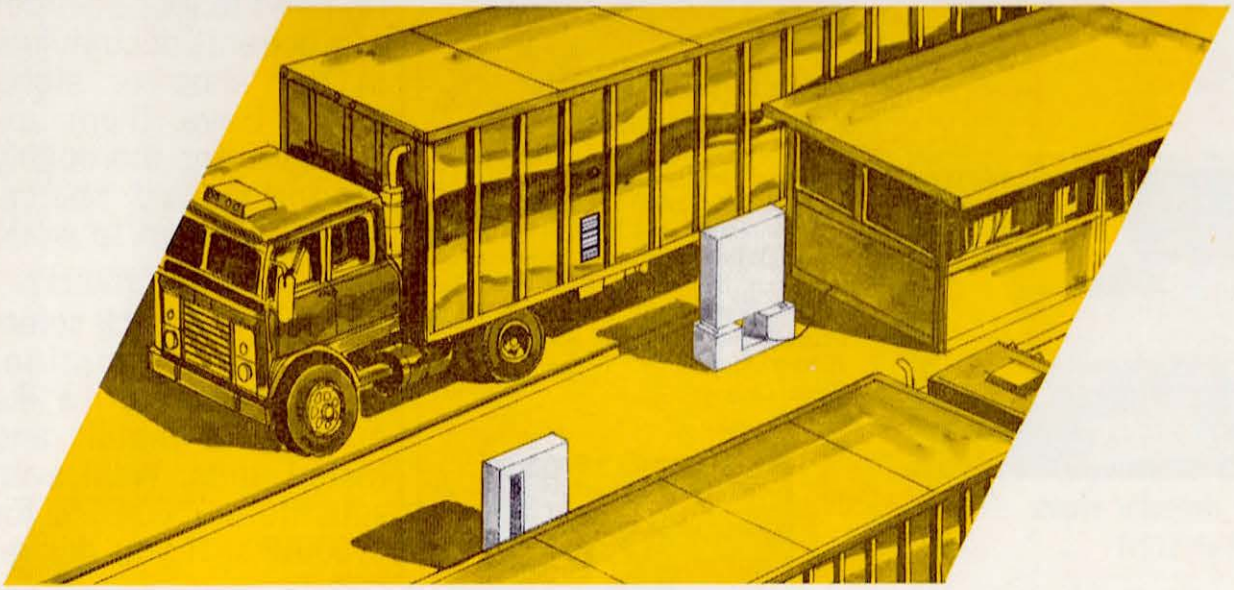

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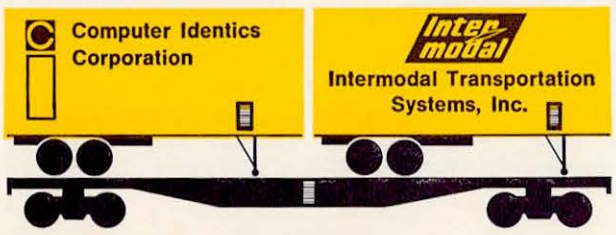

Circle 11 on reader service card

ACI program nears deadline

(Continued from page 58)
plication of ACI is called data enhancement which involves comparing ACI-generated train consist information with railroad advance consist information. Cross-checking the two lists will provide a consist or switch list more accurate than either individual list. The concept is now used to purify input to car accounting information systems, reports John W. Barriger, Jr., manager market development, Transportation Control Systems, Sylvania.

Computer Identics has been instrumental in developing complete system plans for implementing ACI, especially for terminal control, says James Anderson, manager, transportation control systems. CI is working with Intermodal Transportation Systems, Inc., on a terminal control system for Illinois Central at its intermodal exchange in Chicago, a key TOFC/COFC terminal.

Westinghouse Air Brake Co., licensed by Sylvania to manufacture the KarTrak ACI system, has spent considerable effort developing interface equipment to meet individual railroad requirements for connecting ACI into managment-information systems. A key WABCO project has been developing the ACI hardware and software for CP Rail's Alyth Yard at Calgary, Alta.

● **The financial side.** Tight money and the present dip in the economy have caused some railroads to set back ACI implementation. However, except for labeling, which is an out-of-pocket expense. ACI system hardware can be leased, under various combinations. CI-Intermodal, Sylvania and WABCO can provide leasing of ACI systems, including provisions for maintenance.

● **Future of ACI.** Current estimates are that 150 to 200 ACI scanners and systems will be ordered next year. This figure should rise to 250 to 300 annually for the next several years thereafter. For the long range, estimates are that the total number of scanners required to adequately provide the quality control needed for improved car utilization might reach 5,000 to 10,000.

One financial observer points out that even an installation rate of 500 scanners per year would cost only about 1% of the cost of new freight-car purchases per year. Assuming that 10,000 scanners would provide adequate control, this would represent only 1% of the cost of the fleet.

For the future of ACI, there is optimism—mainly because detailed cost/benefit analyses generally indicate that ACI pays for itself and can generate handsome investment returns. ■

Watching Washington

REID BEDDOW

TRUST FUNDS FOR TRANSIT?

Congressional efforts to tap the Highway Trust Fund for other than highway needs are swelling. The Administration itself favors the idea; and Sen. Jennings Randolph (D.-W. Va.), in introducing legislation to extend the Interstate Highway System authorization through June 1977, included a provision funneling some $450 million a year to mass transit bus lines. Critics of the Randolph proposal contend it is a sop to stifle opposition to further highway spending.

Hard on the heels of a proposal last month by the nation's governors to permit states to divert some portion of their Trust Fund monies to other transportation needs, Sen. Joseph Tydings (D.-Md.) introduced a bill to permit states to elect to use a portion of Federal highway funds to meet local transit priorities.

The state option plan is favored by Rep. Jonathan B. Bingham (D.-N.Y.), who says that if the Trust Fund remains tied to concrete and rubber, "the process of paving the countryside will continue unimpeded." Bingham said that next year he will seek to have the House Ways and Means Committee exercise its jurisdiction over the several transportation committees of the House and consider a comprehensive transportation trust fund in which money would be allocated to all modes on the basis of relative needs.

JAVITS PRESSES FOR PENN CENTRAL AID

Sen. Jacob K. Javits (R.-N.Y.), saying financial leaders have "grave doubt" that Penn Central's trustees can sell trustee certificates to raise funds for the bankrupt road, has renewed his call for Federal emergency loan guarantee authority.

Javits' proposed agency, similar to the Depression-era Reconstruction Finance Corp., would have authority to guarantee up to $5 billion in loans to all sound, though cash-short, businesses. An Administration-backed proposal that would aid only railroads (with up to $750 million in Federally-guaranteed loans) has so far faced heavy opposition in Congress.

Javits says that Arthur F. Burns, chairman of the Federal Reserve System, feels so strongly that such a loan guarantee power is needed "that he would be willing to see this power lodged in the FRS if the Treasury did not wish to administer it."

As Javits sees it, the Administration and Congress will soon be faced with three choices with respect to Penn Central: (1) enact a loan guarantee bill such as his; (2) allow PC to suspend operations "with the economic implications such a failure would cause"; or (3) nationalize the railroad. "In my view it is the course of wisdom to opt for the first choice," Javits is telling his colleagues.

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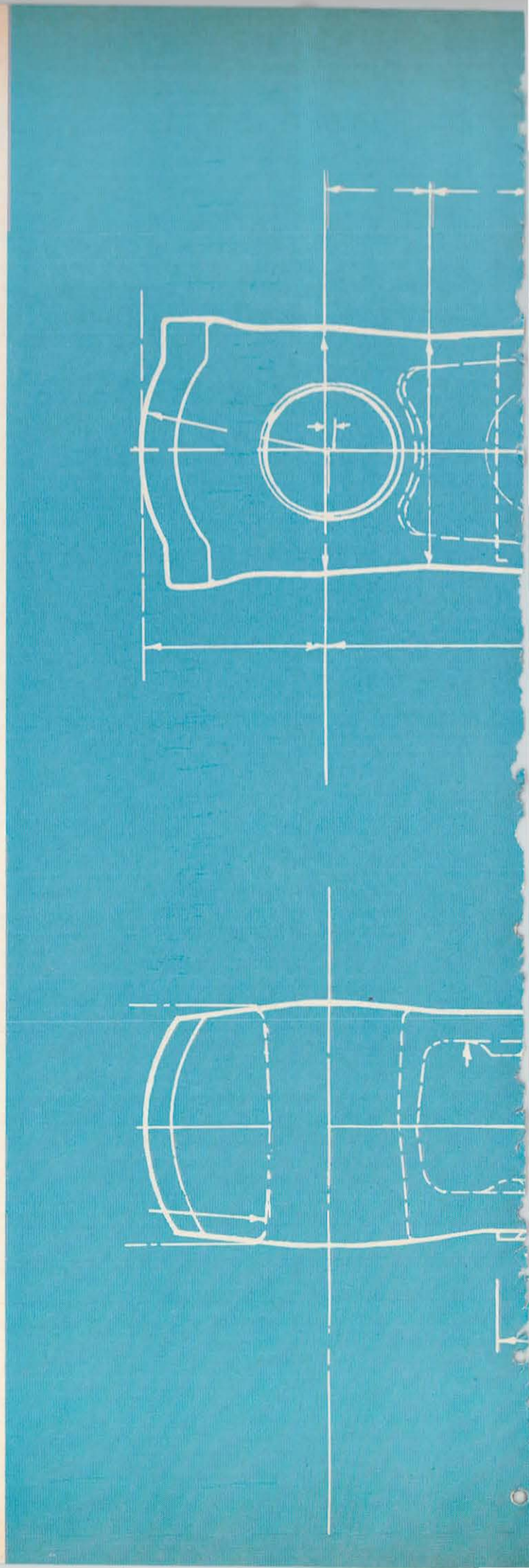

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Illinois governor seeks new transit-aid funds

Gov. Richard B. Ogilvie

World War II tank commander, former sheriff of Cook County, first Republican governor of Illinois in quite a spell and, perhaps, an emerging champion of urban mass-transportation: That's Richard B. Ogilvie, who fell just a bit short this year in trying to get new transit-aid programs through the Illinois legislature.

Gov. Ogilvie's plan was a bold one —involving as it did an added motor-fuel tax which, with local matching funds, would have provided about $48 million in aid. And he put the problem squarely before the lawmakers: "There can be no doubt that the Chicago Transit Authority and a number of downstate metropolitan transit companies face extreme and desperate financial conditions. The revenue generated by the fare box or local revenue sources is simply inadequate to finance the high costs of establishing and maintaining mass-transit systems."

● **No narrow viewpoint.** The problem, he declared, "is statewide—and the solution must also be available statewide."

And, while urban mass transportation was the instant crisis, the governor looked beyond that: "The threatened condition of the CTA and other systems . . . [is] but part of the greater problem of all forms of transportation in the state. Despite a half-century of road-building, we find ourselves still dedicating roads that are inadequate on the day of their completion for today's traffic volumes. And this race to futility is compounded by the historic neglect of the other forms of transportation which could help abate the choking road traffic that costs us uncounted delays and economic losses."

● **Ogilvie's position firm.** Inevitably, transportation problems will be before the legislature again next January. And the governor, responding to a series of questions put to him by Railway Age, seems just as dedicated to improving the situation:

Q. How firm is your commitment to the principle that the state, as well as the municipalities directly affected, should participate in financial aid to ailing but vitally-needed mass-transportation systems?

A. My commitment is firm where there is a proven need. This was demonstrated in detail by my program in the recent special session of the legislature.

Q. Do you have any qualms about trying again to develop transit aid, using motor-fuel tax funds in some way as a source?

A. I would not preclude the use of such funds if the need was clear. The proposal to derive funds for the recent crisis from the motor-fuel tax funds was an emergency measure, since there were no other available funds. All means of funding should be examined and evaluated in the event of another such situation.

Q. Even if Federal aid is available for capital purposes, this doesn't solve the problem of deficits in operating accounts. What would you propose as a long-range way of promoting and aiding mass-transportation systems, as opposed to the short-range emergency measures considered this year in Springfield.

A. While it was occasioned by the emergency confronting the CTA and many downstate bus lines, the program I submitted to the special session was not a limited short-range measure. It would have authorized assistance on a matching basis for bus lines and rail commuter service, as well as for urban rapid-transit systems. It would have authorized aid for operating deficits as well as for capital needs.

● **Three aspects of aid.** Gov. Ogilvie's program to that special session was actually in three parts. He proposed that local governments be given the power to tax private parking facilities, with the tax revenues to be earmarked for transit aid. He proposed the establishment of a permanent Office of Mass Transportation to "determine our present and future needs as they relate to railroads, airports, roads, mass-transit systems and other aspects of the transportation riddle." And he proposed that the legislature authorize an additional half-cent-a-gallon motor-fuel tax to be used with locally-generated matching funds for transit assistance.

The governor knew the risks involved in tapping motor-fuel tax funds. This, too, he approached directly: State aid to mass-transit systems, he said, "is a proper use of the taxes on motor fuel. I think the reasons for this conclusion are so compelling that they must override objections based on partisanship, sectionalism or the selfish motives of special-interest groups . . . .

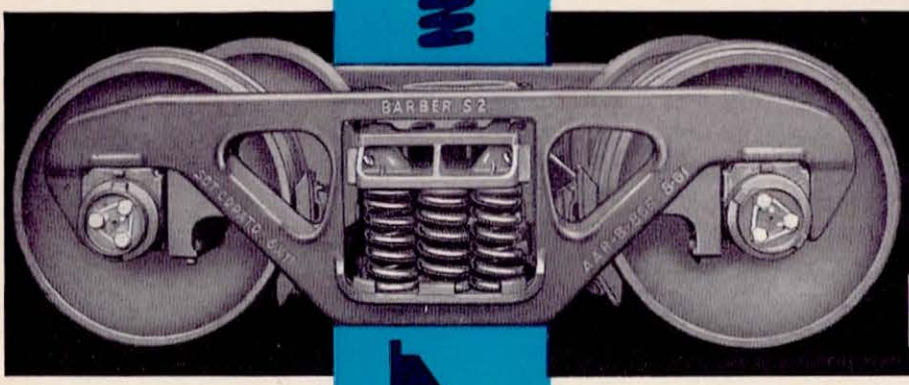
"The direct contribution which mass transit makes to motorists and truckers in terms of their safety, speed and convenience is almost beyond reckoning. We cannot—and we should not—contemplate moving great numbers of people by roads alone in our urban centers. Chicago, for example, would require an additional 70 expressway lanes to handle the present reduced passenger loads of existing transit lines. And even if building these new roads were a feasible or sensible solution—which it is not—the CTA could shut down a lot faster than the roads could be built."

By aiding mass transit, he noted, "we also decrease the heavy maintenance costs on present highways and extend their useful period of service. Thus, grants to mass transit will permit a greater use of available highway funds for needed expansions instead of costly repairs."

● **"Just and fair."** Finally, the governor declared, just as "we cannot begin to reckon the costs of our present traffic tangle, so are we unable to put any dollar figure on the pollution caused by motor vehicles—the greatest single source of air pollution in our major cities. The noise and poisonous emissions which come from our highways can be reduced or held in check by greater use of mass transit. Yet the opposite is surely going to happen unless we recognize the imperative need to assist transit lines and avoid further self-defeating fare increases.

"I submit that devoting one-sixteenth of the state tax on motor fuel to transit grants is a just and fair payment for costs incurred. And to the extent that this small share relieves traffic congestion and deadly pollution, it will provide direct and tangible benefits to every motorist and trucker." ■

What does the "TOTAL DESIGN CONCEPT" of the BARBER STABILIZED TRUCK *REALLY MEAN?*



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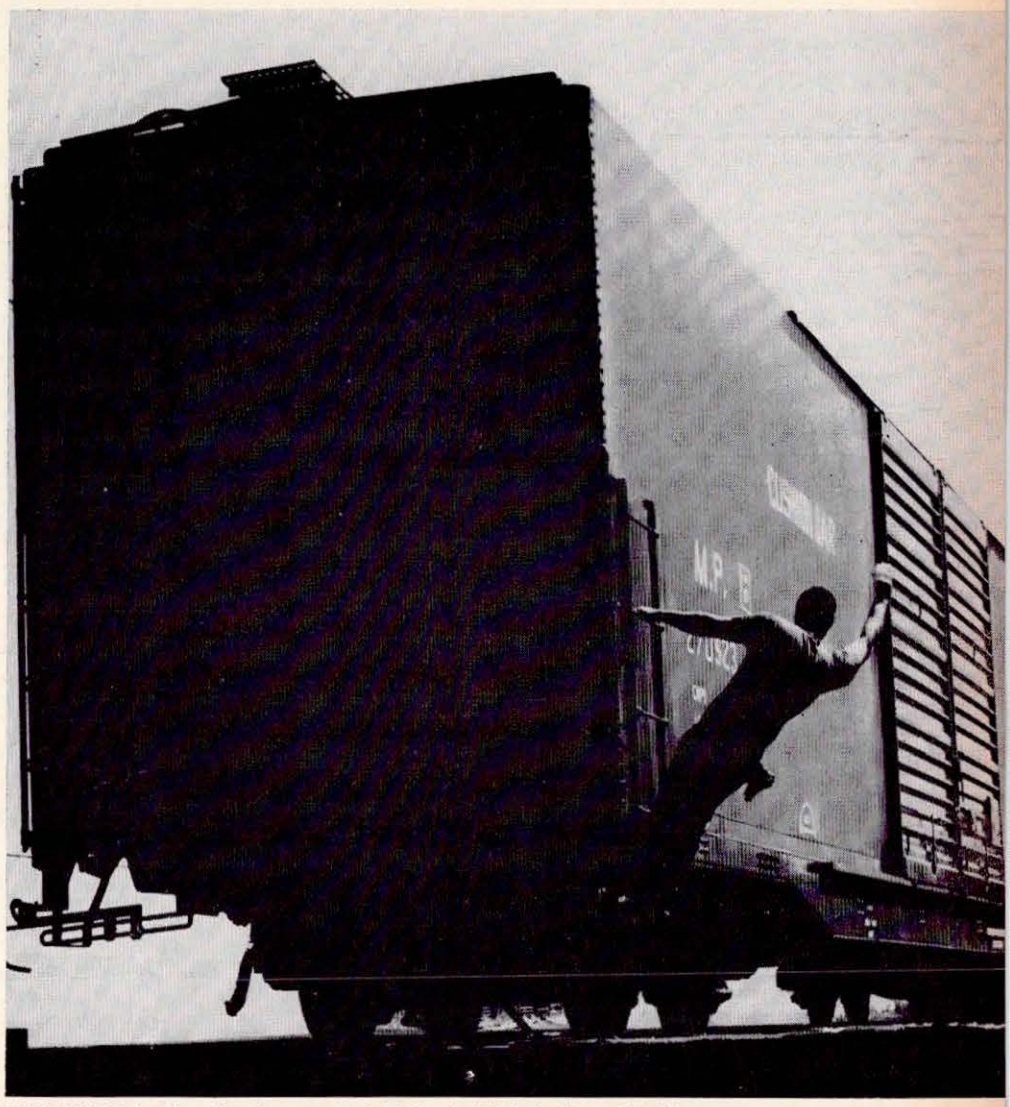
MoPac's goal: For every car trip, a trip plan

For maximum equipment utilization, as well as customer satisfaction, the emphasis is on car—not train—movement



KEY POINT in the development of MoPac's TCS is the attaching of "much greater importance to the planning and control of individual car movements."

Computerized transportation control with the accent on control still is growing up on Missouri Pacific lines, but already stories can be transmitted about the control system's capability.

For example, there's the true story about a shipper in Little Rock, Ark., who called MoPac's customer service center about an empty he said hadn't been delivered for loading by morning as promised. The computer, however, said the car had been delivered late the night before. MoPac's representative told the shipper to look again. The shipper did. The car was there. Result: One sheepish shipper.

Then there's the will-be-true story about the man in MoPac's central train-planning bureau. He juggles schedules so an individual car finds the route that fits it best. The route fits the car, not vice versa. Result-to-be: Many smiling shippers.

This will happen when information and control skill, now a combination of computer information and procedural control as shown in the Little Rock story, works into computer information *and* computer control.

● **What TCC is doing.** Terminal Car Control systems (TCC) now being installed and in operation are characteristically local procedural systems that are installed in a terminal with a heavy emphasis on the control of the movements of individual cars. Feedback from yard crews and yardmasters is continually solicited and examined procedurally to see if individual cars have been handled as planned. Reportings are made to the St. Louis computer for information (inquiry and performance analysis) purposes. When the ultimate computer control comes, hopefully in 1976, shippers at all MoPac points can be told for sure when to take the *first* look for a car as well as why they maybe should take a second look.

● **$20-million-plus for car-control.** MoPac plans to spend more than $20 million over the next seven years to pursue its conviction that a management information system must support car-movement control as much as it provides car-movement data. Part of that conviction is the abandonment of the emphasis on train movements.

In other words, MoPac planners say, the system cannot stop with statistics, no matter how good the statistics may be. The system must be geared to advise management what to do with statistics. It must actively support management in directing and controlling the transportation product, car movement, as well as compare this year's operation with last year's. Throughout, the word is not train-move, but car-move.

Robert B. Schoultz, a former trainmaster now project manager of the Concept Development Section on MoPac's Transportation Control System (TCS) project, puts the railroad's conviction this way:

"Significantly increasing the volume of traffic or improving the mix of traffic is dependent on our willingness to render reliable dock-to-dock services at competitive prices. Tools such as market research, specialized freight equipment, super locomotives and

welded rail, will be of small benefit if customers continue to be confronted with unpredictable dock-to-dock service.

"To improve service reliability and significantly heighten utilization of labor and capital investment, we must attach greater importance to the planning and control of individual car movements."

● **Moving to the front.** The emphasis on control and on cars rather than on trains is not unique to the MoPac system. Many other roads—East, West, Southeast are moving in that direction, too. But, while MoPac may be a relative late-comer in this particular cybernetics application, it is determined to march with the leaders.

"Several major railroads have developed fine computer communications systems to improve service," says Guerdon S. Sines, director of information and control systems. Yet MoPac's deliberate objectives go far beyond those of any existing system. Every conceivable problem faced by MoPac is being considered in the system's development."

● **Elements of the system.** All the applications of the total MP Transportation Control System are scheduled for complete installation by 1977. The initial model of the information-gathering system, now in use on a limited basis and being designed for the entire railroad, will be in operation by June 1971. Throughout the growth of the TCS network, MoPac will focus on these elements:

—Development of a move schedule for each car, with reporting of an exception if a car fails to meet scheduled time of final disposition.

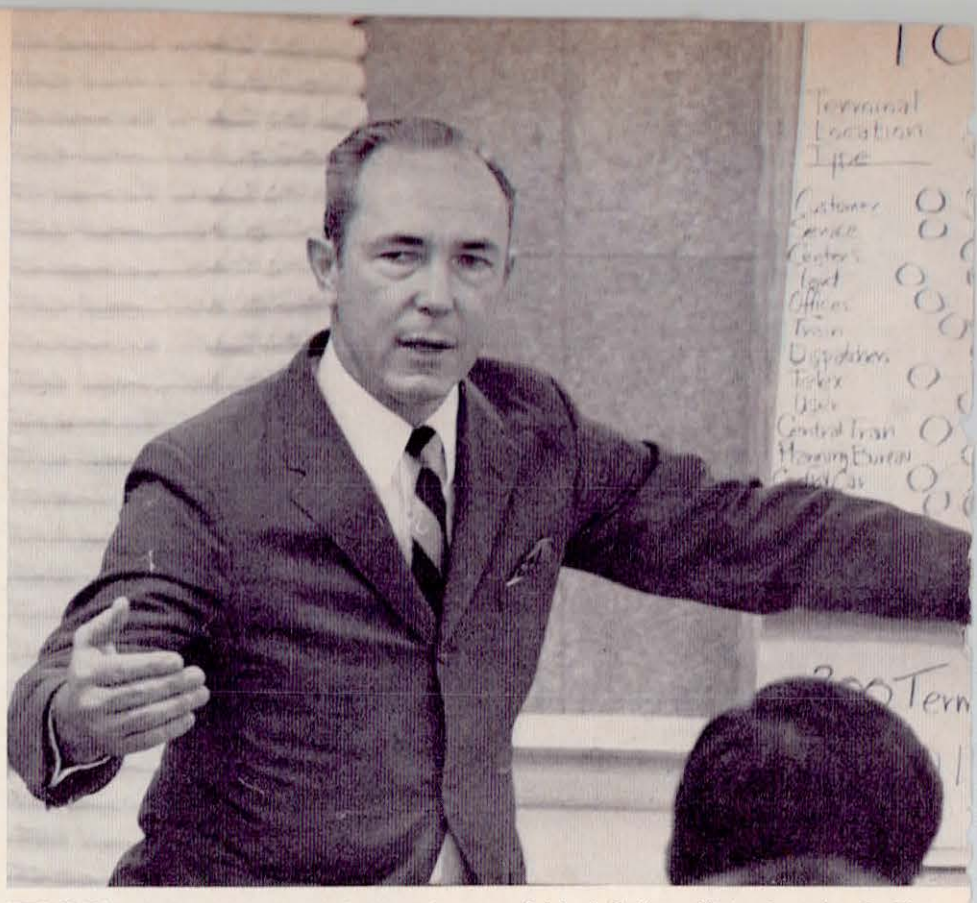
—A transportation organization that (1) uses car information to control car and train movements, (2) centralizes planning and decision-making, and (3) coordinates railroad operations.

—Recognition by management of the need to provide reliable rail service, which is the justification for developing the first two elements.

● **Design for decisions.** The MoPac system is being designed to let the decision-maker communicate the results of his decisions on car movements to all responsible for execution. Conflicts such as scheduling the loading of facilities (trains and terminals) beyond authorized limits will be detected and brought to the decision-maker's attention.

The result, Sines says, is that "as soon as a load or empty is released to our railroad, we can give it a destination and the best possible schedule."

The responsibility will fall on a central train-planning bureau. The bureau will delegate authority for industry transfer and local moves to terminal and linehaul supervisors, but it will retain authority for coordination of all movements.



KEY MAN pushing TCS to complete and successful installation will be Guerdon S. Sines,

"Placement of total responsibility for all car and train movements with the central planning bureau will assure decisions made for the good of the total railroad rather than for any particular operating entity," Sines says.

Decisions of the central bureau would be based on both the information from TCS and the oral advice from line-haul supervisors, operating officials, yardmasters and dispatchers.

The central bureau would issue operating directives for execution by on-line operating personnel. Directives would be based on information processed from real-time data. They would authorize changes covering such factors as extra trains, annulled or consolidated trains, revision of departure schedules or blocking practices, and alterations in work, connection or traffic orders.

● **A trip plan for every trip.** Behind all directives, Sines says, will be the principle that "all movements of a car will be conducted to satisfy a deliberate trip plan composed of a complete route and schedule, from origin siding to destination siding for a load, from origin siding to destination siding or point from which assignments are made to car orders for empties."

The schedule becomes a guide for directing and monitoring a car's activity. If a car misses the schedule, the car will be re-scheduled for the rest of its move. Also, an exception will be reported if the time of final system disposition is jeopardized (final system disposition means placement of a car with yard, industry or transfer locomotive, or local or through train — whatever has last touch with the car on MP track).

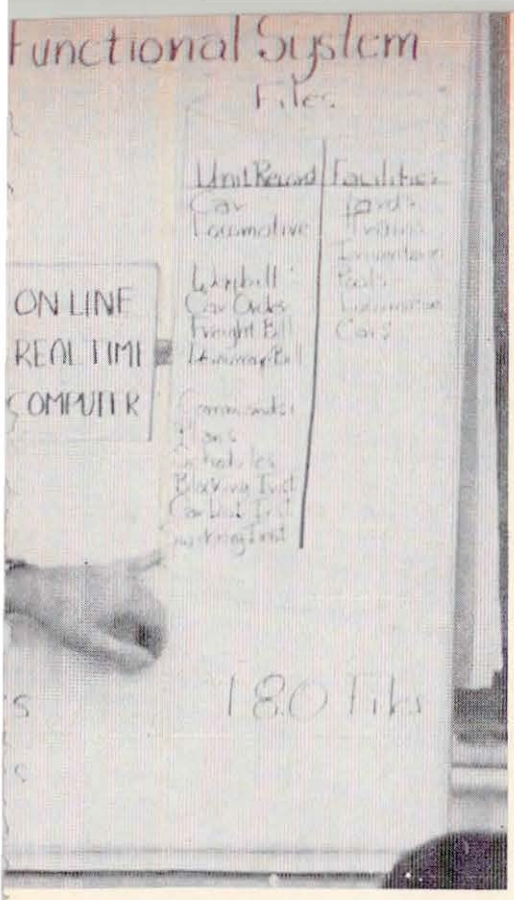
● **Schedule steps.** Drafting a car schedule will involve two main steps — development of possible routes within MoPac territory, and selection of a schedule that provides the earliest time of final MP disposition.

For step one, development of routes, these factors will be considered: (1) Preference of routes for a particular movement; (2) special instructions; (3) places where special instructions can be accomplished; (4) and restrictions of routes on car's type, weight, height, length, width and commodity.

Accompanying the development of possible routes will be the development of car-destination grouping (blocking) alternatives.

There also will be a search for the trains and industry switch engines that could handle the groups in each blocking pattern. This search will be made in a file of schedules for all regular trains and industry switch units.

● **Scheduling the move.** For step two, choice of schedule providing earliest placement time, there will be these considerations: (1) The time a car is available for its initial move; (2) the schedule of trains or locomotives that can handle the car; (3) through-times



director of information and control systems.

for operations of yards and terminals; (4) train-schedule combinations on the possible routes, including moves between yards but within terminals; and (5) restrictions on trains for car types, mechanical specifications, maximum car speed and commodity types.

Once the best schedule is chosen, the car will be added to the "anticipated consist" of each train involved in the car's schedule. Anticipated consist means cars *assigned* to a train.

Before departure of a train, terminal personnel will ask the computer for car-assignment data in the train's anticipated consist. This data will be used to analyze the work needed for train make-up and for train activity on its route.

When the train is made up, the computer would produce another list, an actual consist for comparison with the anticipated one.

If a car shows on the actual consist differently from the anticipated listing, the car will be wiped from all the anticipated consists that have been made invalid. Then a new schedule would be developed projected from the car's actual move.

On the other hand if a train departs and a comparison of the anticipated consist with the actual consist shows that the car failed to make the connection, the car will again be removed from all subsequent anticipated consists that have become invalid. A new schedule will be drafted as if the car had just become available for movement from that point.

If in either situation the new schedule will endanger the final-disposition time, an exception notice will be issued.

● **Men are main control.** Exotic as it sounds, the system won't work, MoPac planners say, without the goodwill of railroad personnel. Management must be convinced of the need for the system and must support its development. Operating and traffic departments especially must work together. Men at every level must be dedicated to accurate input of data.

MoPac, Sines says, has what's needed for executive commitment: "Missouri Pacific officers and planners enjoy a close relationship on this. There is an intimacy here and an exchange of ideas that is extremely refreshing. There is a tremendous amount of informal dialogue."

His reference to smooth association with MoPac officers is confirmed by this statement of Downing B. Jenks, MP president: "It is absolutely essential that we make the Transportation Control System work. If MoPac is to remain competitive and healthy, we must take advantage of the new tools placed in our hands through TCS. Our future depends on it."

● **Department togetherness, too.** After executive-planner cooperation comes interdepartmental cooperation.

Sines says: "We have provided a vehicle for the traffic department to express its needs. Now there is an awareness and sympathy on the part of operating/transportation people of what the traffic people need."

Such a happening is aided by selection of system planners from operating ranks, as well as from other areas of the railroad. For MoPac, the planning group represents a wide range of rail skills in addition to career systems analysts and programmers. For example, Arthur E. Anderson, implementation manager, is a former assistant general manager. Former trainmasters, terminal superintendents, division superintendents and traffic men also are involved in getting TCS off the ground.

This mesh of departments is some hint of things to come under operation of the control system. TCS will bring changes in duty at various levels. Intermediate management at the local level will be relieved of some decision-making for real-time operations of an over-all system nature as the central bureau takes over. Intermediate management will gain time for functions of administration and planning. This management level will concentrate on the development of recommendations for improving the railroad's competitive position on traffic originating or terminating in MoPac country. This function will be pursued in concert with traffic men. Finally, those operating officers assigned to supervise line-haul or terminal moves will find their duties directed primarily to control of car and train movements.

As for a third thing, dedication to accurate input, Sines says: "There is a management determination that our people must learn to maintain the integrity of the reporting system. We are developing the consciousness of everyone from terminal personnel to train crewmen that they have a vital role in maintaining the integrity of the system."

● **Information system in 1971.** The core of the ultimate control system will be the car-movement-control network now moving toward mid-1971 completion. Equipment for the network is being installed in 20 major MP yards. There will be 63 reporting points, linked with the central computer by low-speed, voice-data telephone circuits.

Completion of Phase I will bring these benefits, according to Donald L. Manion, MP vice president-operations:

—Terminals can transmit real-time train-consist and car-status data to the central computer, from where it will immediately be forwarded to terminals for better routing, blocking and scheduling of cars through terminals and over the road.

—Wheel reports will be eliminated.

—Terminal inventories of empty-car availability will give better information for car distribution.

—One-time entry of waybill data into the central computer will eliminate wasteful paperwork and give the traffic department better data for sales and marketing direction.

The central computer will give the mechanical department records on over-the-road motive power and cabooses for measurement of performance by mileage and type of service.

The central computer also will provide better car-movement records for on- and off-line car-tracing.

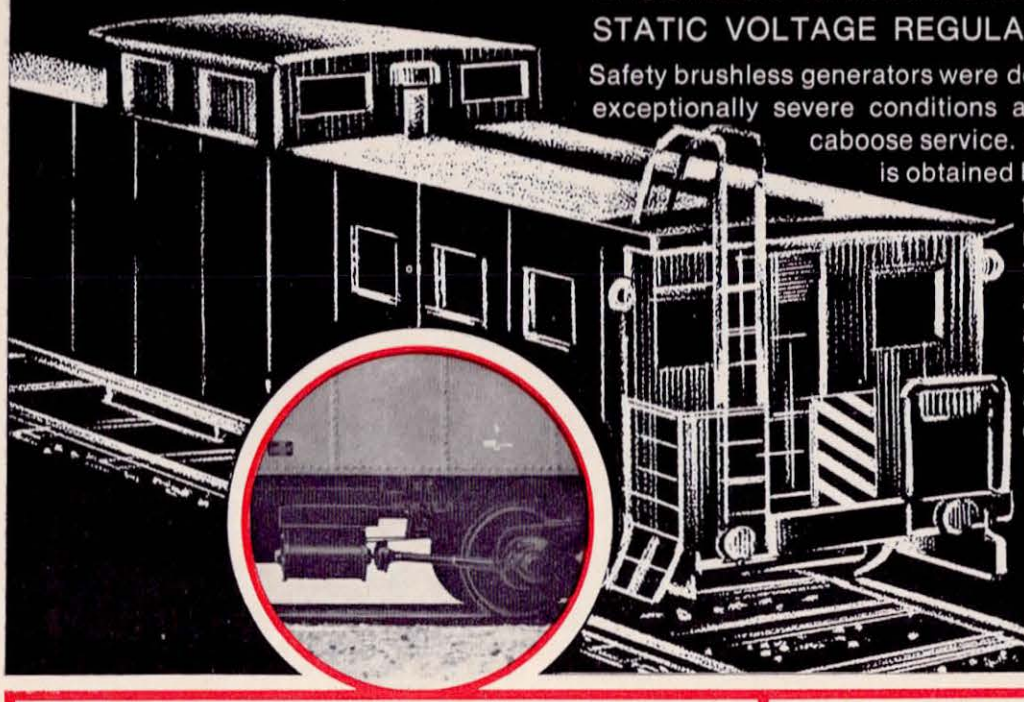
Another part of MoPac's preparation for the coming of full TCS is establishment of 47 customer service centers. This will consolidate customer-communication in one office for each area. The goal of the centers is to make one customer call "do it all."

"Each clerk," says Marvin Ummel, general superintendent-stations and claim prevention, "will be able to handle all of the customer service center functions. This will eliminate the need for transferring calls between persons who often may be miles apart." ■

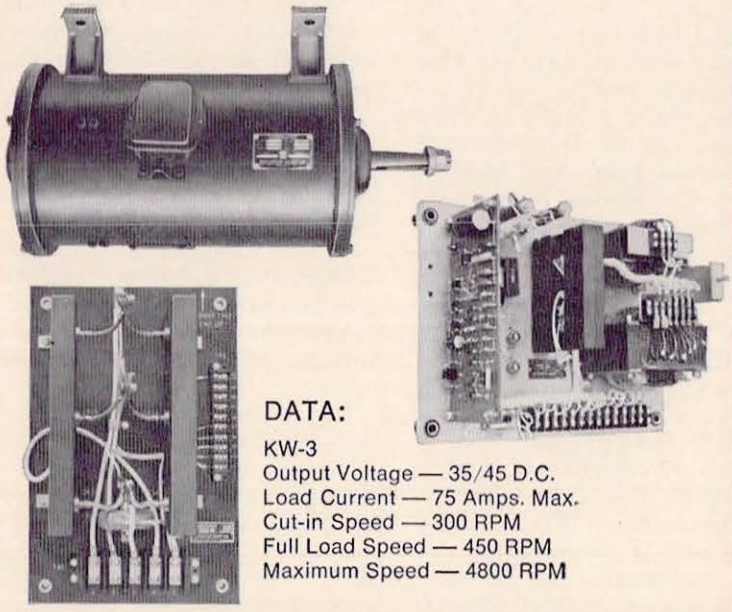
Safety caboose power equipment

BRUSHLESS GENERATORS WITH STATIC VOLTAGE REGULATION.

Safety brushless generators were designed to withstand the exceptionally severe conditions associated with railroad caboose service. Undivided responsibility is obtained because "Safety" manufactures the generators, regulators, rectifiers and the drives. Shown below are but two of the generator "packages", available in many capacities and voltages, and with end of axle drives.



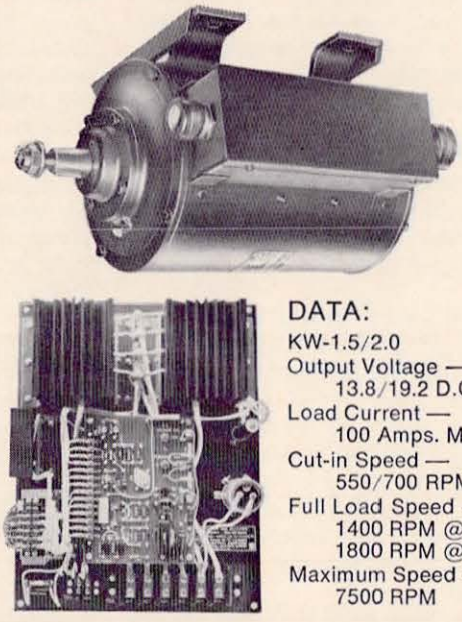
3 KW BRUSHLESS GENERATOR EQUIPMENT



DATA:

KW-3
Output Voltage — 35/45 D.C.
Load Current — 75 Amps. Max.
Cut-in Speed — 300 RPM
Full Load Speed — 450 RPM
Maximum Speed — 4800 RPM

1.5 KW BRUSHLESS GENERATOR EQUIPMENT



DATA:

KW-1.5/2.0
Output Voltage — 13.8/19.2 D.C.
Load Current — 100 Amps. Max.
Cut-in Speed — 550/700 RPM
Full Load Speed — 1400 RPM @ 13.8 V. 1800 RPM @ 19.2 V.
Maximum Speed — 7500 RPM

Safety ELECTRICAL EQUIPMENT CORP.

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1187 DIXWELL AVE., NEW HAVEN, CONN. 06514 TEL. 203: 865-3171

Circle 27 on reader service card

Second Quarter and Six Months' Figures of Calendar Year 1970

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Operating Revenues: Pass.	Revenues Total (inc. misc.) 1970	Revenues Total (inc. misc.) 1969	Operating Expenses: Maint. Way and Structures: Total 1970	Maint. Way and Structures: Total 1969	Maint. Way and Structures: Deprec. and Retirements	Maint. Equipment: Total 1970	Maint. Equipment: Total 1969	Maint. Equipment: Deprec. and Retirements	Traffic	Transportation	Total 1970	Total 1969	Operating ratio 1970	Operating ratio 1969	Net from railway operation	Railways tax accruals	Net Railway operating income 1970	Net Railway operating income 1969
Akron, Canton & Youngstown	3 mos.	171	1,870	—	1,975	2,130	353	272	33	338	334	121	109	682	1,613	1,594	81.7	74.9	362	234	216	301
	6 mos.	171	3,486	—	3,641	3,959	624	529	52	644	688	242	231	1,333	3,086	3,088	84.8	78.0	555	398	364	530
Ann Arbor	3 mos.	299	2,336	—	2,379	2,394	233	433	22	453	524	128	66	1,333	2,079	2,436	86.7	101.8	318	193	—96	—451
	6 mos.	299	4,514	—	4,604	4,814	441	649	45	862	886	258	134	2,469	4,082	4 304	88.7	89.4	522	383	—290	—305
Atchison, Topeka & Santa Fe	3 mos.	12,884	166 999	5,603	185,286	180,364	29,582	26,104	3,159	37,558	33,910	10,689	5,026	70,871	152,386	140.451	82.2	77.9	32,900	16,339	11,199	18,786
	6 mos.	12,884	331,410	9,349	364,782	354,095	57,096	49.980	6,172	73,623	68,575	21,445	9,916	139,413	298,648	276.501	81.9	78.1	66,135	32,561	22,450	36,692
Baltimore & Ohio	3 mos.	5,552	120,813	652	127,740	124,198	16 400	16.887	1,654	20,171	18,319	2.501	2,946	48.570	95.299	89,788	74.6	72.3	32,440	8,635	9,455	12,702
	6 mos.	5,552	224,729	1,190	237,311	230,269	29,400	28.500	3,394	39,086	37,471	5,053	5,830	95,063	183,400	172,006	77.3	74.7	53,911	17,035	10,047	16,087
Bangor & Aroostook	3 mos.	543	3,570	64	3,700	3,818	1,019	963	68	1,175	1,098	438	88	1,165	3,699	3,465	100.0	90.8	1	320	688	803
	6 mos.	543	7,285	119	7,516	7,588	1,949	1,810	138	2,480	2,202	863	178	2.450	7,559	7,006	100.6	92.3	—43	624	781	1,120
Bessemer & Lake Erie	3 mos.	221	11,909	—	12,960	10,404	1,391	1,200	134	1,880	1,591	485	158	2,987	7,250	6,143	55.9	59.0	5,710	2,493	3,057	2,146
	6 mos.	221	17,533	—	18,943	15,908	2,171	2,024	252	3,563	2,990	1,026	327	5,037	12,665	10,926	66.9	68.7	6,279	3,019	3,796	3,014
Boston & Maine	3 mos.	1,531	15,279	1,280	18,266	18,227	2,604	2,530	417	2,828	2,889	639	378	8,247	15,056	14,688	82.4	80.6	3,211	1,454	—123	252
	6 mos.	1.531	29,154	2,600	35,083	35,189	5,431	5,148	877	6,198	5.674	1,279	748	16,801	31,140	29,502	88.8	83.8	3.943	2,777	—2,882	—1,297
Burlington Northern	3 mos.	23,550	195,325	6,447	212,965	198,945	33,137	30,972	3,663	39,594	36,081	11,504	6.589	90,607	187,015	165,973	87.8	83.4	25.950	20,671	7,457	11,978
	6 mos.	23,550	372,395	11,836	405,588	384,398	59,537	57,452	7,278	77,423	72,184	22,676	12,565	175,426	356.749	328,893	88.0	85.6	48,839	38,091	9,736	14,315
CPR Lines in Maine	3 mos.	234	1,612	36	1,707	2,188	285	303	62	443	386	47	64	658	1,601	1,523	93.8	69.6	106	81	—250	238
	6 mos.	234	3,631	70	3,787	4,979	573	679	125	836	839	93	125	1,368	3,187	3,246	84.1	65.2	600	159	—158	811
Central of Georgia	3 mos.	1,729	14,035	159	14.571	14,012	2,887	2,800	203	2,580	2.430	779	340	4,825	11,867	12,179	81.4	86.9	2,705	961	850	—765
	6 mos.	1,729	27,943	307	28,931	27,520	5,171	6,287	411	5,222	4,870	1.543	639	9,436	22,838	24,162	78.9	87.8	6.093	2,206	2,061	—172
Central RR of New Jersey	3 mos.	592	10,404	1,035	13,312	13,528	1 898	1,487	248	2,232	2,057	341	309	6,677	12,010	11,352	90.2	83.9	1,303	1,104	—1,655	—1,128
	6 mos.	592	19,252	2,069	24,877	25,648	3,506	2,960	547	4,404	4.246	686	584	13.288	23.532	22,341	94.6	87.1	1,345	2,232	—4,735	—2,847
Central Vermont	3 mos.	382	2,258	—	2 331	2,386	423	414	72	220	183	11	17	787	1,622	1,636	69.6	68.5	708	166	361	—42
	6 mos.	382	4 351	—	4,513	4,643	942	866	216	424	495	25	44	1,658	3.354	3,513	74.3	75.7	1,159	322	387	—179
Chesapeake & Ohio	3 mos.	5,076	114.386	400	119,948	108,189	14,100	12,211	1,596	21,708	19,863	5.883	2,886	46,718	91,778	82.145	76.5	75.9	28.169	10,339	15.243	12.030
	6 mos.	5,076	214 352	755	223,604	202,484	26,550	23,000	3,215	43,317	39,822	11,976	5,806	91,167	179,425	160,740	80.2	79.4	44.179	18,445	20 038	17,892
Chicago & Eastern Illinois	3 mos.	643	7,839	—	7,973	11.910	1,713	2,300	54	1,539	1,918	360	302	2,955	6.930	9.085	86.9	76.3	1,044	206	—181	849
	6 mos.	643	14,388	1	14,678	24,356	2,804	4,650	103	2,837	4.155	718	634	5,519	12,653	18,957	86.2	77.8	2.025	463	—480	916
Chicago & Illinois Midland	3 mos.	121	1,131	—	1,187	926	175	127	37	321	224	87	7	371	986	782	83.0	84.4	202	147	86	—19
	6 mos.	121	2.081	—	2,179	2,263	283	217	58	554	450	123	14	674	1,753	1,562	80.5	69.0	426	307	198	177
Chicago & North Western	3 mos.	11,371	71,504	5,530	80,170	70.811	12,400	10,404	2,211	12,022	12.273	4,327	2 210	32.860	64,447	60,606	80.4	85.6	15.723	6,282	2,374	—2,572
	6 mos.	11 .82	134,801	10,729	151,611	136.279	22,225	20,823	3,844	25,086	25,810	8.809	4.391	65,613	127,008	122,382	83.8	89.8	24,603	11,987	670	—11,280
Chic., Mil., St. Paul & Pacific	3 mos.	10,479	63,531	2,296	70,980	67.239	13,101	11,849	1,438	12,062	10.930	3,139	1,987	30,415	62.137	57,398	87.5	85.4	8,842	6,330	—3 340	—1,950
	6 mos.	10.479	121.911	4,477	136,024	132,431	22,760	21.356	2.834	23,433	23.176	6,297	3,915	59,965	119,183	114,992	87.6	86.8	16,340	12.241	—6.738	—5.731
Chicago, Rock Island & Pacific	3 mos.	7,175	65,557	1,198	69,469	66.277	10,380	10,753	1,226	11,514	10,472	1,763	1,997	30,003	57,558	54,553	82.9	82.3	11,911	4,921	—4 510	—2,186
	6 mos.	7,175	128.336	2,463	136,099	127,949	18,893	20,112	2,425	22,036	21,556	3,517	3,875	59,700	111,499	107,045	81.9	83.7	24,601	9,700	—7,406	—6,218
Clinchfield	3 mos.	312	9,085	5	9,155	8,337	803	839	75	1,366	1,252	607	263	2,456	5,194	4,789	56.7	57.4	3,960	832	3,106	2,953
	6 mos.	309	17,397	5	17,519	16,552	1,580	1,665	148	2,677	2,470	1,215	527	4.717	10,101	9,541	57.7	57.6	7,419	1,627	5,855	5,614
Colorado & Southern	3 mos.	692	4,713	—	4.774	4 511	629	529	39	774	675	302	44	1.733	3,488	2,973	73.1	65.9	1,286	429	468	883
	6 mos.	692	9,566	—	9,746	8,392	1,162	939	78	1,517	1,337	604	130	3 173	6,615	5,752	67.9	68.6	3,131	989	1,308	1,443
Ft. Worth & Denver	3 mos.	1,201	4,418	—	4,642	4,652	707	619	73	552	496	110	158	2,233	3,992	3,431	86.0	73.8	650	214	—105	727
	6 mos.	1,241	9,603	—	10,045	8,649	1,376	1,316	176	1,035	1,051	222	350	4,374	7,825	7,075	77.9	81.8	2,219	708	454	312
Delaware & Hudson	3 mos.	751	11.394	128	11.899	12,099	1.523	1.397	121	2,346	2.107	408	375	4.532	9.551	8,637	80.3	71.4	2,348	1,448	894	1,973
	6 mos.	751	22,104	241	23,032	23,243	3.011	2.578	248	4,503	3,942	815	740	9 249	18,967	16,991	82.4	73.1	4,065	2,770	702	3,267
Denver & Rio Grande Western	3 mos.	1,899	23,696	258	24,429	24.520	2.707	2,844	338	3,704	3.634	1,319	864	7,733	16.449	16,735	67.3	68.3	7,980	4,539	3,625	3,581
	6 mos.	1,899	45,820	533	47,423	48,068	4,941	4,994	682	7,438	7,473	2.662	1,711	15,441	32,438	32,923	68.4	68.5	14,985	8,418	6.815	7,006

Second Quarter and Six Months' Figures of Calendar Year 1970

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Operating Revenues: Pass.	Revenues: Total (inc. misc.) 1970	Revenues: Total (inc. misc.) 1969	Operating Expenses: Maint. Way and Structures: Total 1970	Maint. Way and Structures: Total 1969	Maint. Way and Structures: Deprec. and Retirements	Maint. Equipment: Total 1970	Maint. Equipment: Total 1969	Maint. Equipment: Deprec. and Retirements	Traffic	Transportation	Total 1970	Total 1969	Operating ratio 1970	Operating ratio 1969	Net from railway operation	Railways tax accruals	Net Railway operating income 1970	Net Railway operating income 1969
Detroit & Toledo Shore Line ..	3 mos.	50	1,745	—	1,861	1,837	168	214	22	291	262	116	69	597	1,234	1,302	66.3	70.9	627	254	258	218
	6 mos.	50	3,285	—	3,515	3,704	356	412	46	605	546	229	144	1,224	2,554	2,615	72.7	70.6	951	406	327	394
Detroit, Toledo & Ironton	3 mos.	478	7,691	—	7,985	7,793	796	667	91	1,682	1,586	619	236	3,095	6,335	5,717	79.3	73.4	1,650	736	630	707
	6 mos.	478	15,034	—	15,589	16,144	1,521	1,271	181	3,219	2,722	1,194	478	6,113	12,372	10,768	79.4	66.7	3,216	1,440	1,375	2,721
Duluth, Missabe & Iron Range..	3 mos.	508	13,067	—	14,389	13,186	1,562	1,193	272	1,655	1,572	538	58	3,142	7,400	6,513	51.4	49.4	6,988	4,377	2,723	2,401
	6 mos.	508	17,262	—	18,711	16,838	2,700	2,364	478	3,255	3,032	1,086	114	4,972	12,951	11,845	69.2	70.3	5,760	4,432	1,616	1,391
Duluth, Winnipeg & Pacific ...	3 mos.	170	2,493	—	2,550	2,340	338	325	16	260	200	2	53	858	1,577	1,438	61.9	61.5	973	462	177	152
	6 mos.	170	5,149	—	5,229	4,509	570	619	32	385	395	5	107	1,653	2,851	2,821	54.5	62.6	2,378	980	663	114
Elgin, Joliet & Eastern	3 mos.	205	11,168	—	16,475	15,579	1,698	1,676	104	3,339	2,213	528	187	6,170	13,058	11,541	79.3	74.1	3,416	1,873	441	664
	6 mos.	205	21,233	—	31,189	30,164	3,096	3,010	230	5,764	4,737	960	386	12,142	24,731	22,851	79.3	75.8	6,458	3,663	797	1,344
Erie Lackawanna	3 mos.	2,881	61,069	2,815	69,187	66,162	8,125	8,187	724	10,423	10,144	1,873	1,410	30,487	53,206	51,417	76.9	77.7	15,981	5,538	3,376	4,465
	6 mos.	2,881	112,864	5,685	128,466	126,597	14,579	13,981	1,525	20,999	19,894	3,754	2,822	60,753	104,709	97,682	81.5	77.2	23,758	10,742	—373	8,695
Florida East Coast	3 mos.	554	7,748	—	7,903	7,807	2,768	2,236	191	1,046	948	279	208	1,857	6,309	5,852	79.8	75.0	1,594	513	173	155
	6 mos.	554	15,398	—	15,740	16,176	5,448	4,921	388	2,386	2,213	575	407	3,918	13,028	12,589	82.8	77.8	2,711	591	263	48
Georgia Railroad	3 mos.	331	2,316	3	2,427	2,513	385	389	36	406	445	94	144	890	1,995	1,989	82.2	79.1	432	159	113	200
	6 mos.	331	4,545	5	4,759	4,936	733	753	59	770	825	184	280	1,726	3,836	3,898	80.6	79.0	923	309	283	419
Grand Trunk Western	3 mos.	946	19,730	406	21,173	19,299	2,749	2,393	197	3,223	2,842	127	515	11,200	19,018	16,741	89.8	86.7	2,154	2,007	—3,431	—3,676
	6 mos.	946	35,900	821	38,792	38,517	4,912	4,372	404	6,361	5,342	328	1,010	21,692	36,585	32,467	94.3	84.3	2,207	3,879	—8,504	—6,493
Green Bay & Western	3 mos.	255	1,759	—	1,792	1,634	182	163	21	234	205	50	128	624	1,314	1,153	73.3	70.6	479	224	54	105
	6 mos.	255	3,376	—	3,443	3,256	326	339	43	454	411	100	248	1,216	2,525	2,353	73.3	72.3	918	423	131	104
Gulf, Mobile & Ohio	3 mos.	2,734	23,990	452	25,729	25,198	3,087	3,393	304	5,474	4,711	1,451	947	9,042	19,832	18,511	76.7	73.5	5,997	2,292	2,119	2,708
	6 mos.	2,734	48,593	853	52,012	49,690	6,552	6,614	597	10,577	9,623	2,859	1,888	18,070	39,420	37,011	75.8	74.5	12,593	4,594	4,829	5,289
Illinois Central	3 mos.	6,766	77,943	5,249	86,042	77,297	13,605	10,469	1,374	14,424	13,000	4,146	2,313	32,183	67,880	60,420	78.9	78.2	18,161	8,296	4,713	5,525
	6 mos.	6,769	148,775	10,090	166,009	154,853	23,727	19,909	3,001	28,865	26,075	8,332	4,511	63,153	130,823	120,799	78.8	78.0	35,186	14,807	11,326	11,215
Illinois Terminal	3 mos.	393	2,631	—	3,034	2,616	307	297	11	434	580	93	86	1,223	2,251	2,248	74.2	85.9	783	227	72	—165
	6 mos.	393	5,112	—	5,821	5,067	616	576	21	883	981	191	164	2,386	4,445	4,188	76.4	82.7	1,376	437	58	—131
Kansas City Southern	3 mos.	1,679	22,253	1	23,541	20,900	2,771	2,596	251	3,798	3,237	1,197	863	7,656	16,260	14,277	69.1	68.3	7,281	2,394	2,606	2,609
	6 mos.	1,679	43,018	4	45,665	40,703	4,916	4,688	504	7,230	6,402	2,347	1,682	14,901	30,907	27,877	67.7	68.5	14,758	4,642	5,471	5,367
Kansas, Oklahoma & Gulf	3 mos.									Merged into Texas & Pacific March 31, 1970												
	6 mos.									Merged into Texas & Pacific March 31, 1970												
Lake Superior & Ishpeming	3 mos.	130	1,488	—	2,007	2,194	254	248	52	387	342	189	9	489	1,263	1,197	62.9	54.6	744	173	634	848
	6 mos.	130	1,606	—	2,551	2,409	472	509	102	753	706	378	19	777	2,266	2,244	88.8	93.1	285	330	106	—75
Lehigh Valley	3 mos.	941	12,459	—	12,909	12,525	1,526	1,385	210	1,691	1,538	166	423	6,028	10,509	10,072	81.4	80.4	2,400	984	—476	—659
	6 mos.	941	24,066	—	24,915	24,264	3,119	2,877	466	3,626	3,234	401	839	12,254	21,500	20,494	86.3	84.5	3,415	2,009	—2,491	—2,234
Long Island	3 mos.	322	2,597	21,356	24,880	22,625	3,706	2,774	266	7,234	5,681	949	309	14,775	28,137	23,621	113.1	104.4	—3,257	1,814	—6,251	—3,611
	6 mos.	322	4,790	40,616	47,207	43,703	7,487	5,633	570	14,244	11,140	1,844	631	29,648	55,847	45,669	118.3	106.8	—8,640	3,457	—14,264	—8,290
Louisville & Nashville	3 mos.	6,068	89,737	269	92,627	83,213	13,574	11,330	1,366	18,709	16,281	6,963	2,294	34,690	74,812	64,272	80.8	77.2	17,814	6,620	8,610	10,912
	6 mos.	6,068	176,890	480	182,885	161,776	26,307	22,204	2,572	37,063	33,157	13,792	4,475	70,261	148,532	127,507	81.2	78.8	34,353	13,036	15,965	19,300
Maine Central	3 mos.	921	6,320	1	6,451	6,541	1,280	1,180	106	1,372	1,318	287	130	2,513	5,713	5,427	88.6	83.0	738	506	—120	347
	6 mos.	921	13,096	1	13,344	13,125	2,522	2,692	196	2,734	2,662	573	255	5,113	11,449	11,261	85.8	85.8	1,895	957	241	332
Missouri-Illinois	3 mos.	333	1,939	—	1,951	1,781	342	262	8	743	633	348	49	451	1,682	1,360	86.2	76.4	269	254	850	1,058
	6 mos.	333	3,686	—	3,705	3,421	648	463	17	1,473	1,239	697	97	903	3,316	2,628	89.5	76.8	389	485	1,626	2,075
M-K-T Lines	3 mos.	2,631	17,169	—	17,813	17,292	2,645	2,784	294	2,243	2,103	383	1,034	6,890	13,701	13,152	76.9	76.1	4,112	1,417	—874	—16
	6 mos.	2,709	32,715	—	33,959	32,697	5,143	4,853	698	4,227	4,090	775	1,966	13,233	26,313	24,747	77.5	75.7	7,646	2,752	—2,096	16
Missouri Pacific	3 mos.	8,918	89,044	338	93,874	87,903	14,402	14,676	1,248	14,961	14,314	3,870	2,350	34,029	70,054	65,465	74.6	74.5	23,820	7,015	7,483	7,195
	6 mos.	8,920	174,061	618	183,391	173,141	27,238	27,450	2,572	30,172	28,164	7,690	4,566	65,859	136,388	127,882	74.4	73.9	47,003	13,270	15,224	15,187

Second Quarter and Six Months' Figures of Calendar Year 1970

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Revenues: Operating Freight	Revenues: Operating Pass.	Revenues: Total (inc. misc.) 1970	Revenues: Total (inc. misc.) 1969	Operating Expenses: Maint. Way and Structures: Total 1970	Maint. Way and Structures: Total 1969	Maint. Way and Structures: Deprec. and Retirements	Maint. Equipment: Total 1970	Maint. Equipment: Total 1969	Maint. Equipment: Deprec. and Retirements	Traffic	Transportation	Total 1970	Total 1969	Operating ratio 1970	Operating ratio 1969	Net from railway operation	Railways tax accruals	Net Railway operating income 1970	Net Railway operating income 1969
Monon	3 mos.	540	5,819	—	6,022	6,085	758	903	61	962	925	207	259	2,377	4,794	4,571	79.6	75.1	1,228	447	95	340
	6 mos.	540	11,348	—	11,748	11,691	1,442	1,584	144	1,868	1,686	421	516	4,539	9,203	8,724	78.3	74.6	2,545	869	362	756
Monongahela	3 mos.	193	1,533	—	1,544	1,403	328	282	34	194	250	23	4	453	1 009	1,024	65.4	7.30	534	99	150	— 25
	6 mos.	193	2,914	—	2,935	2,735	610	612	67	367	460	45	8	934	2,022	2,040	68.9	74.6	913	184	166	— 89
Norfolk & Western	3 mos.	7,594	181,587	345	189,095	177,185	20,578	18,895	2,674	32,966	27,926	12,570	4,069	68,734	135,016	118,758	71.4	67.0	54,079	17,542	29,261	30,758
	6 mos.	7,594	347,941	623	361,661	337,239	37,304	33,906	5,458	363,375	54,406	24,991	8,169	135.273	261,999	230.553	72.3	68.4	100,328	32,106	53,530	55,992
Norfolk Southern	3 mos.	624	3,358	—	3,468	3,153	712	632	75	515	465	178	175	1,102	2.814	2,578	81.1	81.8	654	265	99	97
	6 mos.	624	6,305	—	6.498	6,134	1,272	1,171	150	988	957	354	340	2,040	5,222	4,983	80.4	81.2	1,277	505	266	261
Northwest Pacific	3 mos.	324	2,653	6	2,669	2,949	642	609	41	226	120	3	19	1,004	1,974	1,780	74.0	60.4	695	241	—47	398
	6 mos.	324	4,809	7	4,834	5,575	1,532	1,506	124	337	262	6	41	1.822	3,906	3,769	80.8	67.6	928	463	—494	196
Oregon Electric Railway	3 mos.	186	1,156	—	1,246	1,389	191	243	21	30	41	—	12	512	773	876	62.0	63.1	473	107	—13	88
	6 mos.	186	2,333	—	2,498	2,546	404	392	42	79	85	—	27	1,014	1,589	1,583	63.6	62.2	909	213	—46	139
Penn Central	3 mos.	20,278	379,519	36.023	455,425	417,950	55,739	47,722	8,308	85,932	72,311	15.898	5,785	229,730	407,853	349,198	89.6	83.6	47,573	42.130	—45,026	—7,492
	6 mos.	20,424	710,463	72,252	858,397	823,902	109,592	91,379	15,697	164,815	137,816	31,839	11,585	448,064	794,492	688,095	92.6	83.5	63,905	75,573	—110,822	—17,586
Penn-Reading Seashore Lines	3 mos.	322	2,050	15	2,297	2,169	538	448	120	357	359	40	16	1,532	2,562	2,332	111.5	107.5	—265	173	1,129	—787
	6 mos.	322	3,998	26	4,554	4,258	1,025	854	206	717	707	81	32	3,047	5,055	4,562	111.0	107.1	—501	343	—2,198	—1,681
Pittsburgh & Lake Erie	3 mos.	209	10,420	15	11,023	10,240	1,369	1,015	175	3,587	3,257	1,471	205	3,903	9,708	8,528	88.1	83.3	1,315	2,388	3,467	3,109
	6 mos.	209	18,485	32	19,703	18.729	2,644	1,977	340	6,711	6,149	2,958	416	7,586	18,657	16,734	94.7	89.4	1,046	3,615	6,218	5,646
Reading	3 mos.	1,228	24,291	2,008	29,107	28,787	4,302	4,163	626	5,267	4,725	1,286	722	12,861	25,118	23,385	86.3	81.2	3,989	2,604	—787	1,371
	6 mos.	1,228	45,803	3,991	55,383	54,054	8,592	7,884	1,220	10,395	9,746	2,599	1,413	25.822	50,082	46,166	90.4	85.4	5,300	4,892	3,864	—244
Richmond, Fred. & Potomac	3 mos.	118	5,282	785	6,828	7,348	790	603	104	1,024	820	310	96	2,216	4,621	4,388	67.7	59.7	2,206	1,156	1,153	1,087
	6 mos.	118	10,344	1,631	13,570	14,873	1,439	1,232	209	1,969	1,749	569	182	4,601	9,225	8,963	68.2	60.2	4,315	2,003	2.183	2,170
St. Louis-San Francisco	3 mos.	4,547	44,908	—	46,992	43,844	5,889	5,531	595	6,430	5,726	2,356	1,632	18,880	35,499	31,948	75.5	72.9	11,493	4,003	5,188	5,218
	6 mos.	4,547	87,812	—	91,807	86,957	11,693	11,058	1,185	12,716	11,739	4,676	3,175	36,927	69,744	63,718	76.0	73.3	22,033	7,915	9,840	10,050
St. Louis Southwestern	3 mos.	1,520	32,129	—	32,556	29,816	3,107	2,531	250	5,411	4,798	2,623	790	10,833	20,958	18,212	64.4	61.1	11,598	3,592	8,308	6,694
	6 mos.	1,520	61,604	1	62,483	59,400	6,282	4,786	537	10,980	9,321	5,218	1,573	21,136	41,520	35,530	66.5	59.8	20,963	6,699	15,029	14,856
Savannah & Atlanta	3 mos.	167	1,164	—	1,197	1,235	62	226	16	214	213	86	28	362	713	867	59.6	70.2	484	307	276	107
	6 mos.	167	2,348	—	2.422	2.425	119	294	34	441	430	173	53	694	1,404	1,597	57.9	65.8	1,019	663	572	337
Seaboard Coast Line	3 mos.	9,252	119,370	4,326	128,808	124,737	16,840	14,623	1,499	23,534	20,591	5,985	3,586	46.682	97,408	91.871	75.6	73.7	31,399	11,041	8,792	11,171
	6 mos.	9,258	238,195	9,313	257,987	248,286	33,412	29,641	2,897	46,716	40,501	12,054	7,247	93,753	194,578	183,573	75.4	73.9	63,409	22,459	18,591	22,229
Soo Line	3 mos.	4,693	27,434	—	27,993	26,715	4,603	3,938	335	3,533	3,625	920	828	10,812	20.978	19,675	74.9	73.6	7,016	2,896	1,994	2,077
	6 mos.	4,695	53,160	—	54,135	51,354	8,335	7,410	686	7,504	7.163	1,830	1,643	21,298	41,134	38,524	76.0	75.0	13,001	5,290	3,780	3,605
Southern Railway	3 mos.	6,068	98,084	1,049	103,155	96,399	15.389	12,478	1,267	17,132	16.034	5,786	2,349	32,339	72,533	64,907	70.3	67.3	30,622	10,930	15,741	14,544
	6 mos.	6,068	187,039	1,833	196,983	189,118	28,181	23,213	2,609	35,549	31,316	11.839	4,381	63,438	142,162	126,858	72.2	67.1	54,822	18,415	29.275	27,823
Alabama Great Southern	3 mos.	529	9,689	109	10,288	10,428	1,483	1,703	248	1,969	1,589	712	240	3,527	7,844	8,163	76.2	78.3	2,445	728	1,158	1,018
	6 mos.	529	19,559	184	20,671	20,085	3,632	4,149	497	4,006	3,720	1,392	454	6,715	15,984	16,868	77.3	84.0	4,687	1,327	2,011	762
Cinn., New Orleans & Tex Pac	3 mos.	415	14,214	1	14.963	14,181	1,474	1,408	290	3.077	2,703	1,294	338	3,730	9,356	8,720	62.5	61.5	5,607	2,561	3,496	3,236
	6 mos.	415	27,267	7	28,719	27,430	2,739	2,728	530	6,239	5,519	2,588	627	7,410	18,355	17,377	63.9	63.4	10,364	4,468	6,542	5,845
Georgia Southern & Florida	3 mos.	454	4,059	—	4,217	4,071	673	517	44	362	230	88	99	1,190	2,529	2,133	60.0	52.4	1,688	181	531	503
	6 mos.	454	8,228	—	8.550	8,312	1,197	1,028	96	697	447	167	187	2,356	4,819	4,122	56.4	49.6	3,731	559	1,220	1,051
Southern Pacific Trans Co	3 mos.	11,735	233,187	2,639	243,315	235,807	28,039	29,642	2,715	41,314	43,280	15,074	3,978	96,753	184,491	182,362	75.8	77.3	58,825	21,995	22,490	18,601
	6 mos.	11,735	445,201	4,741	464,840	456,472	53,927	54,830	5,809	81,319	85,196	30,021	7,969	187,427	359,302	353,903	77.3	77.5	105,539	42,059	38,160	35,730
Texas & Pacific	3 mos.	2,141	22,409	19	23,899	21,819	3,462	3,502	338	4,219	4,101	1,381	912	9.034	18,620	17,052	77.9	78.2	5,279	1,633	2,457	1,816
	6 mos.	2,039	43,007	36	45,840	43,156	6,108	6,278	591	8,145	7,773	2,616	1,671	17,398	35,255	32,925	76.9	76.3	10,584	3,065	4,734	4,177
Toledo, Peoria & Western	3 mos.	239	2,478	—	2,581	2,473	384	377	16	363	244	59	198	973	2.113	1,826	81.9	73.8	468	164	13	164
	6 mos.	239	4,868	—	5,077	4,932	626	641	34	599	467	118	387	1.844	3,849	3,527	75.8	71.5	1,229	428	229	404
Union Pacific	3 mos.	9,473	153,245	2,503	163,211	155,003	18,097	17,661	1,963	30,922	27,601	12,910	4,625	59,673	124,815	115,375	76.5	74.4	38,396	14,019	24,823	20,128
	6 mos.	9,473	300,963	4,397	319,657	304,852	35,677	34,774	4,086	61,331	54,726	25,573	9,034	117,974	246,515	229,171	77.1	75.2	73,142	28,829	44,233	36,326
Western Maryland	3 mos.	865	13,344	—	14,012	13,735	1,890	1,891	220	3,174	2,939	910	462	5,196	11,534	10,694	82.3	77.9	2,477	1,160	2,156	2,274
	6 mos.	865	25,471	—	26,899	25,875	3,740	3,728	424	6,460	5,776	1,830	938	10,198	22,932	20,992	85.3	81.1	3,967	2,160	3,748	3,736
Western Pacific	3 mos.	1,176	17,585	5	17,828	16,963	2,184	2,372	306	3,548	3,727	1,008	904	6,945	15,326	15,311	86.0	90.3	2,502	1,399	407	395
	6 mos.	1,176	32,116	307	33,023	33,464	4,598	4,401	601	7,338	7,083	2,023	1,829	13,899	30,918	29,739	93.6	88.9	2,105	2,717	—1,961	909

People in the News

William C. Wieters
LV

L. Stanley Crane
Southern

Harold H. Hall
Southern

Walter W. Simpson
Southern

AKRON CANTON & YOUNGSTOWN—**C.F. Cornell** appointed assistant superintendent of transportation-manager of equipment, Akron, Ohio.

AMERICAN REFRIGERATOR TRANSIT CO.—**J. E. Max** appointed manager of methods and procedures. **J. E. Hamilton** named equipment planning officer.

ATLANTA & ST. ANDREWS BAY.—**Milton B. Holloway** appointed safety supervisor, Dothan, Ala. He will continue to serve as chief clerk to the president..

BALTIMORE & OHIO.— **George M. Riley,** coal traffic manager—rates, appointed general coal traffic manager in charge of rates, Baltimore. **Paul E. Aaseby,** sales representative, Chicago, appointed regional manager-world commerce there, succeeding **W.G. Johnston, Jr.,** named manager sales administration, Baltimore.

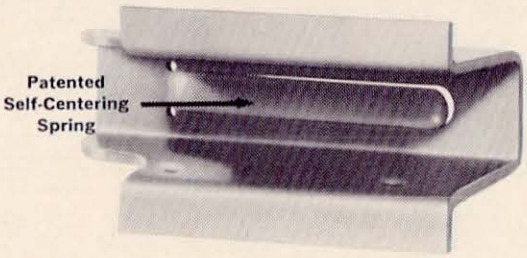
BANGOR & AROOSTOOK-PITTSBURG & SHAWMUT.—**Alan G. Dustin,** division superintendent, **Erie Lackawanna,** Scranton, Pa., named to the new Bangor, Me., post of assistant to the president—railroads, **Amoskeag Co.,** which owns BAR, P&S.

BESSEMER & LAKE ERIE.—**Richard A. Ullery,** assistant chief engineer, promoted to chief engineer, Greenville, Pa., succeeding the late **David T. Faries.**

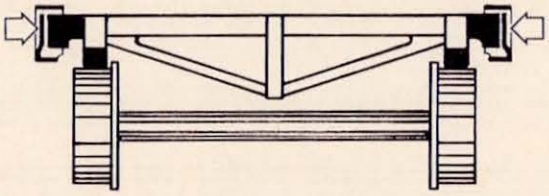
BURLINGTON NORTHERN.—**Emmet P. Hughes,** assistant manager, merger control and planning, named to the newly created position of manager, service planning. **Dennis H. Terry,** manager, market research, appointed marketing manager-oils, chemicals and fertilizers. **Alfred H. Englehart,** market manager-automobiles and implements, retired recently after 28 years of service.

C. J. Bryan named assistant to vice president, operations, St. Paul. **D. H. Burns** and **S. B. McNaghten** appointed operations managers, Chicago region, Chicago and Portland region, Portland, Ore., respectively. **M. E. Hagen** and **J. G. Melonas** become superintendents, Dakota division, Grand Forks, N.D. and Rocky Mountain division, Missoula, Mont., respectively. **H. E. Shipman** named terminal superintendent, Galesburg, Ill., and **R. V. Myers,** assistant terminal superintendent, North Kansas City, Mo. **W. A. Hatton** appointed trainmaster, Aurora, Ill. **L. R. Burk** and **J. M. Arrington** become terminal trainmasters, Cicero, Ill. and St. Louis, respectively. **H. E. Gagnier** appointed transportation director COMPASS; **N. V. Kolpin,** director, transportation analysis;

REDUCE WHEEL FLANGE WEAR



Buffalo — Unit Wear Plates will reduce wheel flange wear for just pennies per wheel.



Self-Centering Spring centers brake shoe on tread of wheel. Only Buffalo Self-Centering Wear Plate UW 133 gives you this unique advantage.

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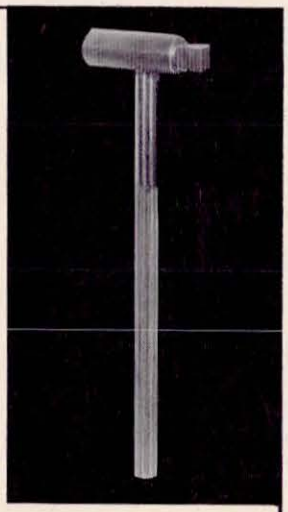
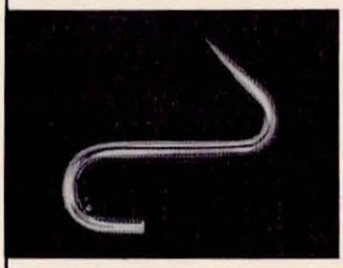
Circle 31 on reader service card

NEW SMECO STANCHION HAMMER-WRENCH



Heat treated cold rolled steel . . . super tough to eliminate breakage! Sensibly priced.



SMECO CAR HOOKS

SMECO specializes in the manufacture of car hooks . . . long, short, galvanized, black or stainless steel . . . lowest prices, fast service! Any quantity from 300 to 300,000! Packed 300 short per drum, 150 long. (Minimum order one drum.)

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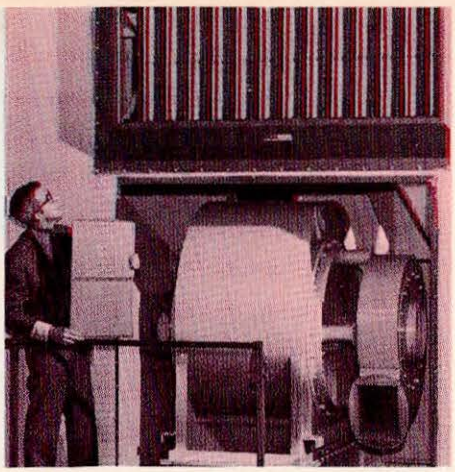
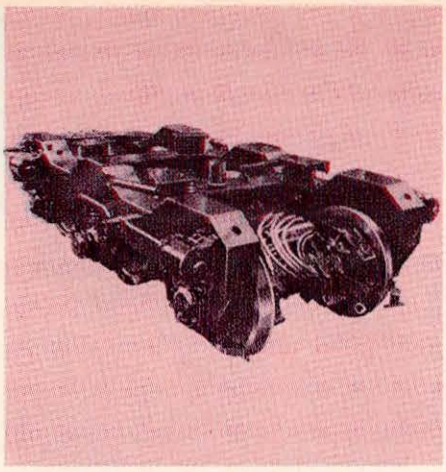
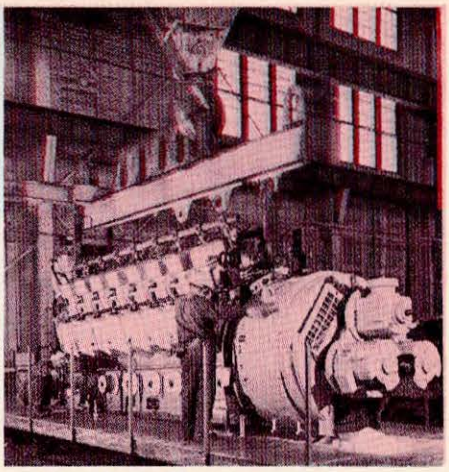


A single mechanically driven blower and fully ducted electrical cooling and combustion air system with pressurized electrical control compartment.



Hi-adhesion trucks with low weight transfer characteristics and matching wheelslip highly discriminating and modulating control system.



Up-dated Model 251 engines with high capacity, water-cooled turbocharger and steel cap pistons.

LOOK AT THESE NEW "MLW" FEATURES

MLW-Industries
A Division of
MLW-Worthington Limited
1505 Dickson St., Montreal 426, P.Q.

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D. R. Schoeberlein, director, transportation schedules; **D. E. Wagers,** assistant director, terminal performance control; **D. S. Quilici,** manager special projects-TPC; **J. L. Williams,** staff assistant, terminal performance control; **T. C. Lindrud,** manager TOFC-COFC; **Walter Ferguson,** assistant manager TOFC-COFC, all with headquarters in St. Paul.**J. R. Rodberg** named manager TOFC-COFC, and **J. A. Jacobs,** assistant manager TOFC-COFC, both with headquarters in Chicago. **D. E. Ericksen** named assistant director, operations analysis and **R. C. Gilbert,** manager, applied research, with headquarters in St. Paul.

Clayton C. McLean, regional director, safety and rules, Minneapolis, transferred to Chicago, to succeed **Martin L. Schwamberger,** on medical leave of absence. Mr. McLean is succeeded by **Ross S. Van Ness,** assistant regional director, Galesburg, Ill., who in turn is replaced by **James E. Whitman.**

D. O. Hughes named material manager, Grand Forks, N.D.; **E. A. Stafford** and **J. C. Lason,** assistant material managers, Denver and Vancouver, Wash., respectively.

CANADIAN NATIONAL.—A. R. Williams, general manager, Atlantic region, Montreal, appointed vice president, sales.

R.G. Messenger, operations manager, Toronto Area, appointed general superintendent transportation, Great Lakes Region, Toronto, succeeding **S.T. Cooke,** promoted, **W.T. Van Deventer,** assistant to vice president, Vancouver, B. C., succeeds Mr. Messenger.

A.J. Wilson, assistant manager-freight rates, Montreal appointed manager-freight pricing. **William Cameron** appointed manager, customer research, Prairie Region, Winnipeg. **W.K. Morris** appointed sales development officer, Prairie region.

C.E. Dobson, system manager of freight rates, Montreal, appointed special assistant to the vice president freight marketing.

Conrad R. Marcoux, assistant purchasing agent, St. Lawrence Region, Montreal, promoted to purchasing agent, succeeding **D. Bennett,** transferred to system headquarters.

Stan G. Durrant, manager of industrial development and customer research services, Atlantic Region, appointed assistant chief of industrial development, Montreal.

J. A. Clark, assistant general superintendent transportation, technical, Detroit, Mich., appointed superintendent, transportation, Saskatchewan Area, Saskatoon, succeeding **R. B. Ferrier,** transferred to a similar position at London, Ont.

CANADIAN NATIONAL TRANSPORTATION LIMITED.—L. K. Ash, assistant general manager, Toronto, promoted to general manager there, succeeding **L. J. Henderson,** named special representative, west coast, Vancouver, B.C. In his new post, Mr. Henderson will develop long range marketing and sales plans for **Midland Superior Express Limited** and **Chapman Transport Limited,** subsidiaries of CNTL.

CANADIAN PACIFIC.—G.A. Nutkins, assistant superintendent, Chapleau, Ont., transferred to Smith Falls, Ont., succeeding **G.G. Sayer,** who replaces **H.E. Lyttle** as assistant superintendent, Ottawa, Ont.

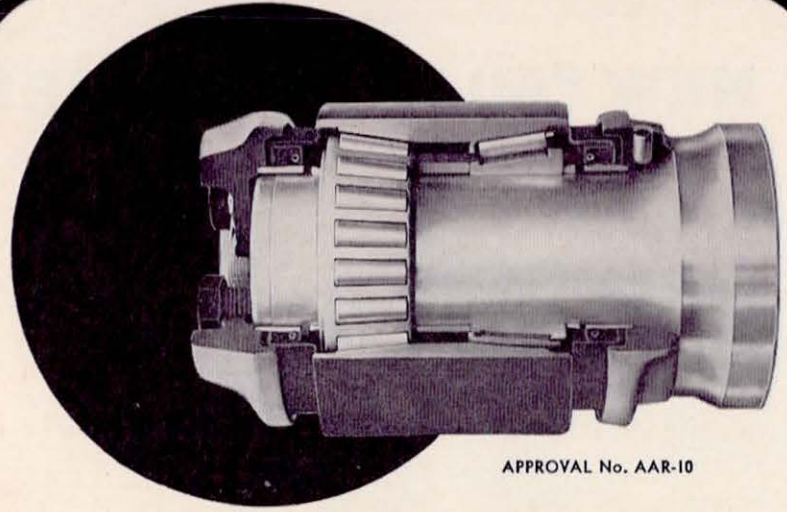
CHESAPEAKE & OHIO.—John J. Bailey, assistant general manager, World Commerce Department, New York, promoted to general manager of the department, succeeding **George Roach,** who retired Sept. 1, after more than 44 years of service. **Cyril A. Demyan,** manager of world commerce, New York, succeeds Mr. Bailey.

Keith W. Bird, superintendent of terminals, Flint, Mich., appointed superintendent, Grand Rapids, Mich., succeeding **K.E. Bomar,** named staff assistant, Baltimore. **Melvin R. Guinn,** terminal trainmaster, appointed assistant superintendent, Grand Rapids, succeeding **C.R. Krieve,** who replaces Mr. Bird at Flint.

CHESAPEAKE & OHIO—BALTIMORE & OHIO.—James M. Reynolds, Jr., system rate manager, C&O, Richmond, Va., appointed general manager-chemical industry, market planning department, C&O/B&O, Baltimore, succeeding **James H. Suthann,** named assistant to vice president-merchandise freight sales, B&O.

CHICAGO & NORTH WESTERN.—Raymond J. Degnan, general sales manager-north central states, named assistant vice president-sales, to succeed **Iver S. Olsen,** assistant vice president and director of sales, who retires Oct. 1 after more than 50 years' service.

Ronald N. Boesen named assistant market manager-coal and petroleum prod-



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Circle 34 on reader service card

ucts, and **C. Joseph Miller,** assistant market manager-automotive traffic, both with headquarters in Chicago.

Dick D. Neu, named research project manager. Mr. Neu, a retired Army major, formerly served as plans officer at 5th Army Headquarters.

DELAWARE & HUDSON.—K.E. Miller, general superintendent, Albany, N.Y., appointed general manager of labor relations. **Harold J. Farley,** superintendent, Susquehanna Division, **Erie Lackawanna,** Hornell, succeeds Mr. Miller as general superintendent, D&H. **E.G. Young,** director of labor relations and personnel planning, appointed assistant general counsel.

James T. Colpoys, trainmaster, Green Ridge, Pa., appointed superintendent of safety, Albany, succeeding **W.C. Laraway,** retired. **P.O. Naples,** assistant trainmaster, Oneonta, N.Y., succeeds Mr. Colpoys at Green Ridge.

DENVER & RIO GRANDE WESTERN.—C. H. Kerns, manager-pricing services, retired Aug. 31 after more than 46 years of service.

ERIE LACKAWANNA.—Edward T. Berrian appointed trainmaster, Marion Division, Marion, Ohio.

ILLINOIS CENTRAL.— In a restructuring of the Accounting Department, **William R. Sims,** manager disbursement accounting, advanced to general auditor, **George J. La Cien,** manager responsibility accounting, succeeds Mr. Sims, and in turn is succeeded by **Vincent A. Abbeduto. Daniel T. Kelly** named manager central billing.

Raymond G. Wiggins, traffic manager grain and grain products, appointed assistant regional manager, New Orleans. **Douglas A. Hills,** traffic manager-chemicals and petroleum, New York, named assistant manager eastern sales there.

Thomas W. Ver Valin named to the newly created position of environment engineer.

LEHIGH VALLEY.—William C. Wieters, general manager on the staff of the executive vice president, **Penn Central,** Philadelphia, appointed vice president—operation, LV, Bethlehem, Pa., succeeding **James E. Martin,** named general manager, Southern Region, PC, Indianapolis.

Paul B. Carroll appointed assistant freight sales manager, Detroit, Mich., succeeding **G.R. Murphy.**

Nicholas Jamicola appointed assistant director of labor relations and personnel, Bethlehem. **Edward C. Anderson** named manager, labor relations, and **George W. Rhoads,** chief examiner.

MILWAUKEE.—Walter T. Barrington, general accountant, Chicago, retired July 31 after more than 32 years of service.

Kenneth L. Clark, engineer of track, Chicago, retired July 31 after 33 years' service.

MISSOURI PACIFIC-TEXAS & PACIFIC.—G. H. Kading, Jr. appointed tax commissioner, Dallas to succeed **R. W. Guffey,** retired after 49 years of service.

K. D. Hestes named general manager, Western district, Kansas City, Mo. **G. M. Holzmann** appointed general manager, Gulf district, Houston.

D. B. Smith appointed district superintendent stations and claim prevention, Eastern district, Little Rock, Ark. **D. L. Harrison** and **M. J. McBroom** become assistant district superintendents stations and claim prevention, Eastern district, Little Rock and Gulf district, Houston, respectively.

Robert L. Barley, manager-systems analysis and programming, named manager of the Transportation Control System project, with headquarters in St. Louis.

J. C. Chambers, traffic representative, New Orleans, appointed international sales representative, Chicago. **Harris J. Ducote,** general agent, St. Louis, appointed manager sales training there.

MONONGAHELA.—Hugh J. Martin, general superintendent, Southern Region, **Penn Central,** Indianapolis, Ind., appointed superintendent, **Monongahela,** Brownsville, Pa., succeeding **Thomas T. Connelly,** resigned.

NORFOLK SOUTHERN.—W. Fred Nation, district sales representative, Jacksonville, Fla., promoted to district sales manager, Atlanta, Ga.

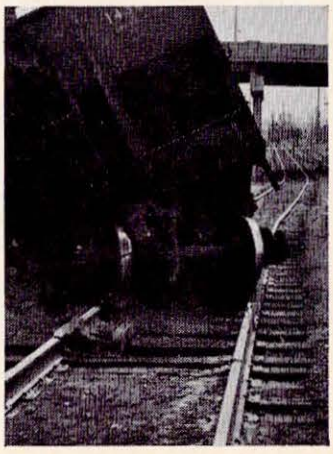
NORTHERN ALBERTA.—A. J. Dove ap-

(Continued on page 98)

Hand-thrown or remote-controlled

Hayes ALL-STEEL DERAILS

physically protect the main line



Derails or signals? Each has its place: signals are obeyed by men; Hayes Derails are obeyed by equipment.

When signals are not involved, the Hayes Derail alone is competent to keep the main track clear.

In modern signal systems, the Hayes Sliding Derail with DeLectric® Operator under remote control provides complete protection.

The "calculated risk" of omitting derails may be costly. Hayes Derail protection is inexpensive.

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Free leatherette ring-binder catalog of world's most-specified derails, bumping posts and wheel stops (including periodic supplement sheets). Write on letterhead.

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DIVISION OF FEDERAL SIGN AND SIGNAL CORPORATION

Call us "The FUTURISTS" (It's a name we enjoy living up to!)

RICHMOND, INDIANA 47374

Circle 28 on reader service card

don't store it.

Eliminate pollution and waste handling directly right in your locomotives, cars or out buildings. No dumping, emptying, flushing or freezing! Designed for railroad use. Proven for over 10 years. The Rail-Head operates automatically with a jet of sterilizing flame and cool, forced air venting. Easy and economical to install, maintain and use. Operates for pennies a day on gas or fuel oil, and available electricity. Fully approved and guaranteed. Write:

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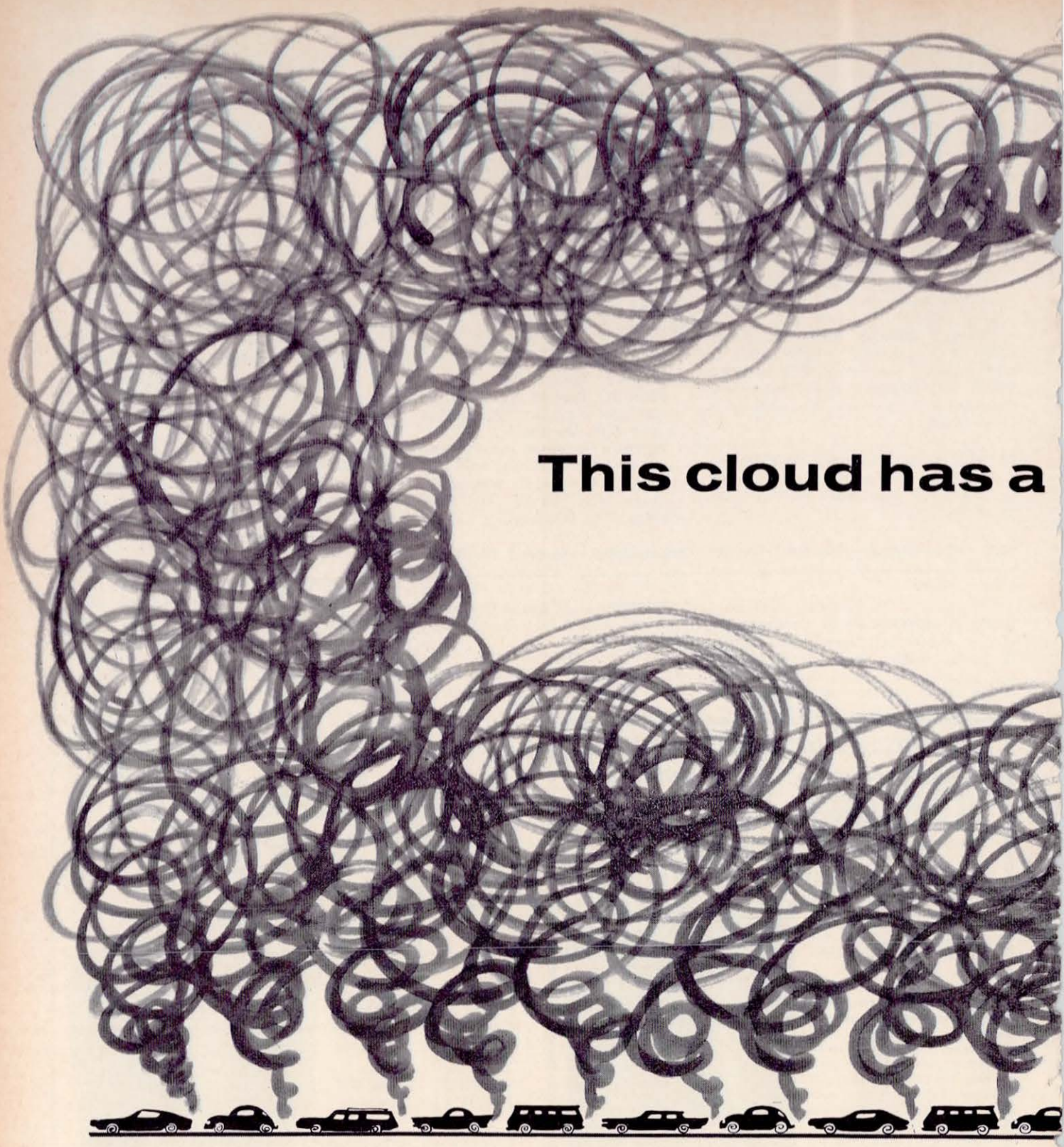


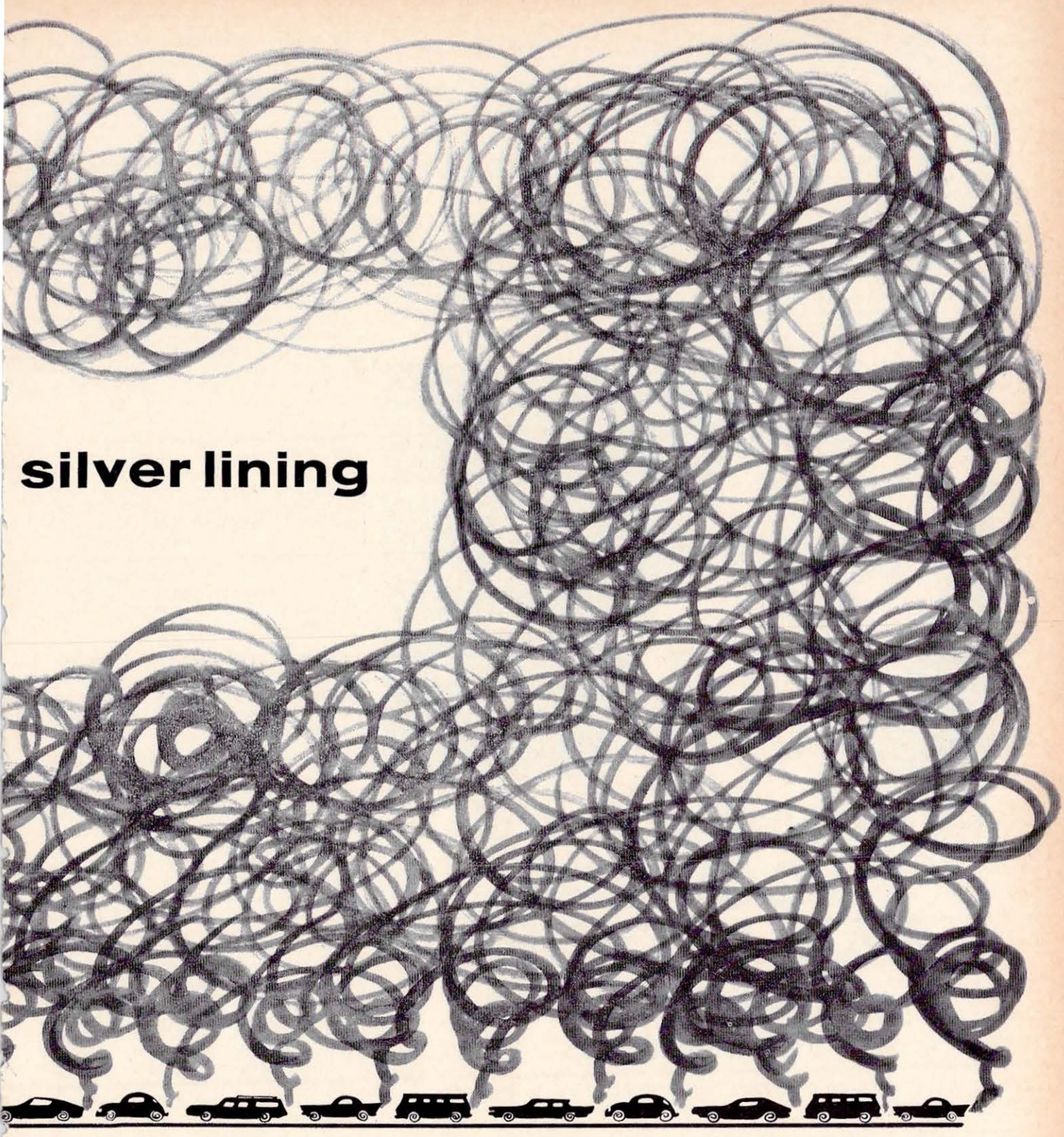
This cloud has a

Mass transit.

Whereas automobile engines produce carbon monoxide, the well known poison...

A train's diesel engine (due to a surplus of air in the combustion process) produces carbon dioxide—which thrills plants right down to their chromosomes, where they use carbon dioxide to produce oxygen.

Furthermore, whereas it may take 50,000 horsepower to carry 500 car riders into the city —at 1.5 people per 150 horsepower car—it takes only 1,200 horsepower with a diesel-powered train, what with the volumetric efficiency of a diesel, the minimal rolling resistance of a steel wheel on a steel rail, the low frontal resistance of a train, etc., etc.



If the rail line is electrified, the silver lining of transit gleams and glitters. When the sulfur problem of central power stations is licked, transit's contribution to pollution will approach zero.

Like its zero contribution to parking lot glut and the choking of city traffic.

Transit is not only cleaner and less space-demanding, it's safer, quieter and economically more efficient.

You can say that again.

The silver lining to America's auto pollution problem is mass transit.

RAILWAY AGE

30 Church Street, New York, New York 10007

pointed traffic manager, Edmonton, Alta., succeeding the late **G. Walker.**

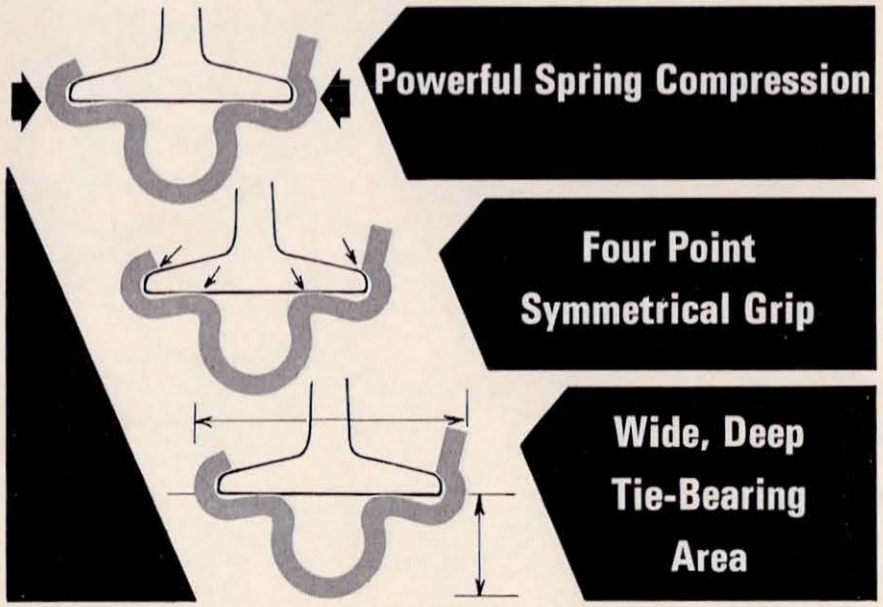
PENN CENTRAL.—James E. Martin appointed general manager, Southern Region, Indianapolis. Mr. Martin, formerly vice president-operation, **Lehigh Valley,** succeeds **Jay M. Gilmore,** acting general manager, who has resumed his position as assistant general manager of the region. **Ralph G. Kennedy III** named manager–market research, Philadelphia. Mr. Kennedy was formerly staff assistant–marketing, **Bessemer & Lake Erie.**

Alan L. Peters, pricing staff assistant, appointed assistant manager–pricing, Pittsburgh, succeeding **Patrick E. Purcell,** promoted to manager–pricing services, St. Louis.

RAILROAD RETIREMENT BOARD.—Samuel A. Block, assistant director of research, named director of research.

READING.—Allen Lesley, general attorney, retired Aug. 31, after 26 years of service.

ROCK ISLAND.—Adolph J. Raaf named division engineer; **D. L. Gibson,** general supervisor of track, and **Richard L. Rockey,** general roadmaster, with headquarters at Silvis, Ill. **J. R. Venable** appointed assistant division engineer, El Reno, Okla.



The extra holding power of WOODINGS RAIL ANCHORS

gives the reserve you need for welded rail

And that's a proven fact! Tests conducted by railroads and independent laboratories have demonstrated the superior holding power of Woodings Rail Anchors. They give the consistently strong grip that welded rail requires.

Woodings Rail Anchors can be placed quickly and accurately by hand or mechanical means. They have a high reapplication value without reconditioning, cannot be overdriven, can be easily removed and reinstalled, and are self-adjusting to mill variations of rail dimensions.

MEMBER RPI

WOODINGS-VERONA TOOL WORKS

Verona, Pa. 15147

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ST. LOUIS SOUTHWESTERN.—Jules J. Kessler named manager-equipment services, St. Louis.

Paul M. Bunting, manager public relations and special services, St. Louis, retired July 31 after 45 years' service.

SANTA FE.—John W. Hayes, assistant to the president-staff studies, promoted to assistant to president-executive department, succeeding **Wilbur L. Camp,** who retired Aug. 31 after more than 40 years of service.

David P. Valentine named to the newly created position of assistant general superintendent of transportation, Chicago. Mr. Valentine was formerly associated with **Consolidated Freightways,** San Francisco.

William S. Autrey, assistant to chief engineer system, Chicago, appointed chief engineer, system there, to succeed **R. H. Beeder,** retired.

SOUTHERN.—L. Stanley Crane, vice president–engineering, named executive vice president, operations, succeeding **William H. Moore,** who became president and chief executive officer, **Penn Central,** on Sept. 1. **Harold H. Hall,** general manager, Western Lines, Atlanta, Ga., appointed vice president, transportation, Washington, D.C. **Walter W. Simpson,** assistant vice president, engineering and research, appointed vice president, engineering, Washington.

TORONTO TERMINALS.—G. J. Harlock, area engineer, Toronto Area, **Canadian National,** appointed superintendent, **Toronto Terminals,** succeeding **G.D. Pogue,** retired.

TRAILER TRAIN CO.—Sheldon Landy appointed to the new position of director of development planning, Philadelphia. Mr. Landy was formerly manager of marketing services, **Illinois Central.**

Robert E. Zimmerman has been appointed assistant treasurer of Trailer Train, Philadelphia. Previously he was supervisor, manufacturing cost and facilities analysis, consumer operations, Philco-Ford Corp.

UNION PACIFIC.—Edward M. Prouty, assistant to the vice president-operations, elected vice president and assistant to the president.

Edward L. Bialer appointed transfer agent, New York. Mr. Bialer has been operations manager, J. Barth & Co.

Fred W. Howland and **Adrian H. Schipper** named general freight agents, Omaha and Chicago. **Darrell A. Dorn** appointed assistant general freight agent, Boise, Ida.

John P. Deasey named to the newly created position of controller, Transportation Division.

Donald W. Bronson, district director of international trade, Los Angeles/Long Beach harbors, appointed director of international trade, Los Angeles, to succeed **John G. Duggan,** who retired July 31 after more than 43 years of service. **Scott L. Smith** named assistant director of international trade.

VERMONT.—Charles F. Bratvogel appointed vice president–T.O.F.C., at 400

(Continued on Page 107)

SPECIAL REPORT

COORDINATED ASSOCIATIONS

Sherman House, Chicago
September 14-16

- **Programs**
- **Product Showcase**

The annual meetings of the Coordinated Associations at Chicago's Sherman House regularly involve the Air Brake Association, the Car Department Officers Association, the Locomotive Maintenance Officers Association and the Railway Fuel and Operating Officers Association. No equipment exhibits are scheduled during the 1970 meetings.

A service by the Simmons-Boardman Railway Age Group

ANNUAL LUNCHEON

Wednesday, September 16

Address— R. C. Grayson, president. St. Louis-San Francisco.

AIR BRAKE ASSOCIATION

Monday, September 14

Morning Session—10 a.m.

Joint meeting with CDOA.

Address—R. E. Taylor, assistant vice president-mechanical, Burlington. North. Freight Car Air Brake Inspection, St. Louis Brake Club.

Afternoon Session—2 p.m.

Wabcopac Today—Design and Performance—R. L. Wilson, manager product evaluation, Westinghouse A.B.C. Pneutronics Test Console for AB Valve Portions—J. G. Rees, president, Pneutronics Corp.

A Review of European Air Brake Practice —J. W. Washburn, design engineer, Westinghouse Brake & Signal Co. Ltd.

Tuesday, September 15

Morning Session—9 a.m.

The Metroliners—Manhattan A. B. Club. Freight Car Brake Rigging for Composition Shoes—Central Air Brake Club. Questions and Anwers—L .F. LaRotonda, air brake instructor, Rock Island

Afternoon Session—2 p.m.

Review of Thermal Damage in Railroad Wheels—Norman A. Berg, manager sales, Griffin Wheel Co.

Expediting the Measurement of Brake System Leakage—Chas. E. Hart, chief engineer, New York Air Brake Co.

Railroad Operations-Cold Weather—Pittsburgh Air Brake Club.

Wednesday, September 16

Morning Session—9 a.m.

Braking Ratios and Rigging Efficiency—Canadian Air Brake Club

Report—Air Brake Maintenance. D. E. Whitney, gen. supt.-brake systems, BN.

CAR DEPARTMENT OFFICERS ASSOCIATION

Monday, September 14

Morning Session—10 a.m.

Joint meeting with ABA. See above.

Afternoon Session—2 p.m.

Address—President D. V. Hon, chief mechanical officer-car, Burlington North.

Report—Repair Track and Train Yard Operations. Chairman: D. F. Dilgard, superintendent car department, C&NW.

Slide Presentation—Wrecking Equipment in the South, W. E. Ayres, Jr.

Report—A.A.R. Loading Rules. J. W. Bell, chief interchange inspector, Joint Inspection Bureau, St. Louis-E. St. Louis Terminal District.

Tuesday, September 15

Morning Session—9 a.m.

Report—Freight Car Equipment. Chairman: R. D. Ratliff, superintendent car equipment, Western Maryland.

Report—Protective Coatings. Chairman: C. W. Seagran, coating engineer, Shippers Car Line Div., ACF Industries.

Film—ABC's of Surface Preparation.

Afternoon Session—2 p.m.

Report—TOFC/COFC. Chairman: H. C. Ludwig, supt. car dept., Reading.

Report—Passenger/Communter Equipment. Chairman: M. J. Chandler, Manager m-u car maintenance, PC.

Wednesday, September 16

Morning Session—9 a.m.

Report—Wheels, Axles, Wheel Shop Practices. Chairman: E. Dozier, general foreman, wheel shop, Missouri Pacific.

Report—Car Lubrication. Chairman: R. S. Woodson, mechanical supervisor, N&W.

Comments—R. Byrne, research director, Association of American Railroads.

Report—Controlled Temperature Atmospheric Systems. Chairman: D. W. Long, engineer equipment maintenance, Pacific Fruit Express.

Comments—R. F. McKee, asst. gen. mech. and eng. officer, PFE.

LOCOMOTIVE MAINTENANCE OFFICERS ASSOCIATION

Monday, September 14

Morning Session—10 a.m.

Address—President G. R. Weaver, director equipment engineering, Penn Central.

Report—Fuel and Lube Oil. Topic: Relation of Operating Conditions to Lube Oil Characteristics. Chairman: K. D. Reed, manager—research laboratory, PC.

Afternoon Session—2 p.m.

Address—J. H. Heron, vice president-equipment, Penn Central.

Report—Diesel Mechanical Maintenance. Topic: Major Locomotive Maintenance Mechanical Problems-1970. Chairman: N. A. Buskey, supt. shops, C&O/B&O.

Tuesday, September 15

Morning Session—9 a.m.

Report—Diesel Material Standardization and Control. Topic: Increased Locomotive Availability Through Standardization. Chairman: J. J. Butler, chief mechanical officer. Reading.

Report—Shop Equipment. Topic: Evaluation and Repair of Damaged Locomotives. Chairman: K. Axelson, manager—production standards, motive power. Burlington Northern.

Afternoon Session—2 p.m.

Report—Electric M-U Train Maintenance. Topic: Effect of Power System Characteristics on Performance. Chairman: R. P. Turnbull, manager-mechanical engineering, Long Island.

Report—Diesel Electrical Maintenance. Topic: Major Locomotive Electrical Problems-1970. Chairman: R. G.

Clevenger, supervisor locomotive maintenance, Santa Fe.

Wednesday, September 16
Morning Session—9 a.m.

Report—New Developments in Motive Power. Topic: Uniform Reporting of Locomotive Failures. Chairman: J. Taggart, system mechanical officer-motive power, Canadian National.
Report—What's Your Problem. Chairman: J. J. Dwyer, engineer, environmental control, C&O/B&O.

RAILWAY FUEL AND OPERATING OFFICERS ASSOCIATION

Monday, September 14
Morning Session—10 a.m.

Address—President J. F. Litz, general road foreman engines-system, N&W.
Address—C. S. Patton, general manager-motive power and equipment, N&W.
Safety—Film, A Second's Chance. H. M. Sutt, regional superintendent safety, C&O/B&O.
Train Handling Indicator. L. V. Hekking, Reflectone, Inc.

Afternoon Session—2 p.m.

Progress of Locomotive Simulator. D. L. Culbertson, manager engine service training, Southern Pacific.
Training by Simulator Program. H. E. Woodhouse, Railway Educational Bu.
Train Simulator, L. P. Kennedy, Jr. superintendent-air brakes, N&W.
Locomotive Engineer Training Program. J. J. Ratcliff, dir.-labor relations, Frisco.
Training and Testing in Operating Rules. D. J. Hoerning, training supervisor, PC.

Tuesday, September 15
Morning Session—9 a.m.

Movement of Traffic. H. W. Deck, gen. mgr.-transportation, Armstrong Cork; D. M. Wiseman, gen. mgr.-freight sales, Milw.
Panel Discussion—Proposed Revised Standard Code of Operating Rules Chairman: J. D. VanCleave, manager, operating rules, Penn Central.

Afternoon Session—2 p.m.

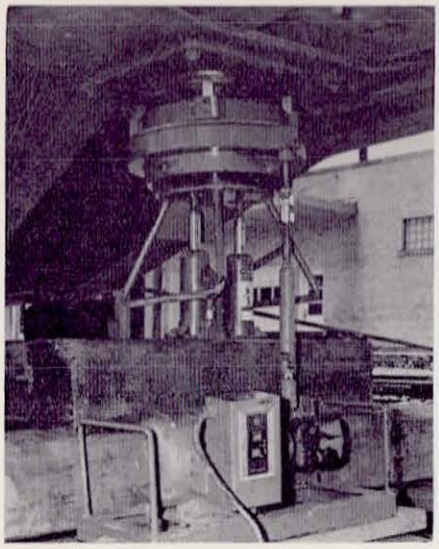
Recent Developments in Railroad Labor-Management Relationships. J. P. Hiltz, chairman, National Railway Labor Conf.
Address—L. Cena, vice president, operations, Santa Fe.
Panel Discussion—Locomotive Operation and Train Handling. Chairman: M. A. Davis, Delaware & Hudson.

Wednesday, September 16
Morning Session—9 a.m.

MLW-Worthington, Ltd. H. A. Weglinski, manager, transportation sales.
Determining Practical Tonnages and Speeds in Grade Operations, D. G. Blaine, district engineer, Westinghouse A. B. Co.
Fuel Handling—E. L. Christie, chief fuel inspector, Santa Fe.

PRODUCT SHOWCASE

For added information circle corresponding number on Reader Service Card.

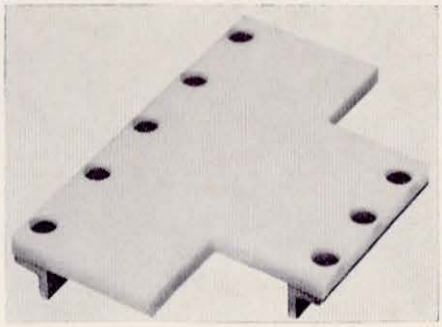


Center plate refinisher 70

A portable system for refinishing both truck and body-bolster center plates consists of two refinishing heads and a power drive unit. Refinishing of center plate bowls is accomplished without removing the bolster from the truck. Body center plates are refinished while the car is jacked and truck removed. The device can be used at repair tracks or any field point where compressed air and 110-volt power are available. The FreightMaster Center Plate Refinisher is a development of associaed Halliburton Services Division and grew out of a need for such device in maintenance of its privately-owned freight car fleet. *FreightMaster.*

Wrecking crane 71

The Holmes RC-50 Wrecking Cranne with four-man crew can travel over highways or on rails and lifts up to 100,000 lb. According to the manufacturer the crane can move onto rails in less than 5 min, then proceed at up to 25 mph on its Fairmont flanged-wheel units. Over-the-highway speeds of 55 mph can be obtained. Clearance is under 12½ ft and the RC-50 can readily go around damaged trackage. It is able to approach a derailment from any angle. Four hydraulic outrigger jacks and two rail tie-downs are used for added support during lifting. Crane boom is 25 ft long. A complete freight-car truck can be transported under the boom. In addition to rerailing, railroads are using the crane for removing cargo from disabled cars and for correcting shifted loads. *Ernest Holmes Co.*

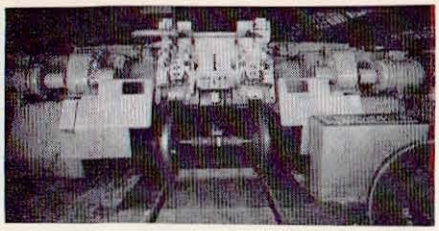


Carrier wear plate 72

A high-strength thermoplastic, Daythene, is used in fabrication of coupler carrier wear plates for both standard and long-shank couplers. Daythene retains its toughness in temperatures ranging from minus 65 to 185 deg F and has proven superior to steel, nylon, urethane and polyester in other applications. It resists both abrasion and impact. The wear plates can be made for coupler and draft gear carriers of any size or shape, regardless of car design, and are supplied with backing plates for welding in position. In coupler tests the material has shown 4 to 15 times the wear resistance of steel and does not cause excessive wear of coupler shanks in prolonged service. *Dayco.*

Automatic wheel lathe 73

The Model 165 permits automation of the reprofiling of wheelsets since the lathe can be incorporated in a shop reconditioning line. The portal arrangement allows each wheelset to roll through, eliminating any need for special handling equipment. An automatic lifting device brings the wheelset into engagement in the centers. Machining cycle is short, even though normal cutting speeds and feeds are used. Machining data is selected on the keyboard



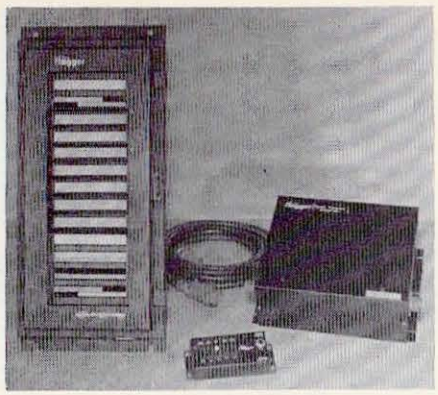
of the machine, assuring uniform work quality. All motions are hydraulically controlled. Tools use throw-away inserts. Compound templates assure the accuracy of profiling. Machine turns at 6 to 20 rpm with infinitely variable feeds and a maximum swing of 43¼ in. *Hegenscheidt.*

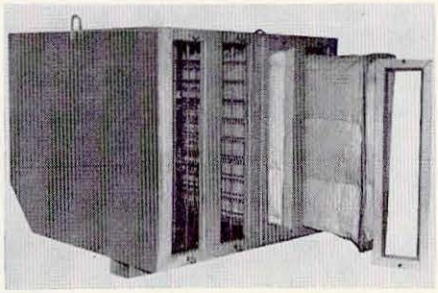
Auto-frame securements 74

A universal Auto Frame Securement System eliminates the problem of changing tie-down fixtures to accommodate varying auto frame models and makes. It is adjustable to handle all models and is readily converted for periodic model changes. Its adjustments include vertical, lateral and longitudinal ranges. The AAR-approved system was developed and tested in cooperation with A. O. Smith Corp. In a recent test, an 89-ft car loaded with 170 frames was subjected to five impacts at up to 10.65 mph without damage to car, lading or securement system. The car has made numerous trips carrying successfully a half-dozen different frame designs over many railroads. *Portec.*

Malfunction indicator 75

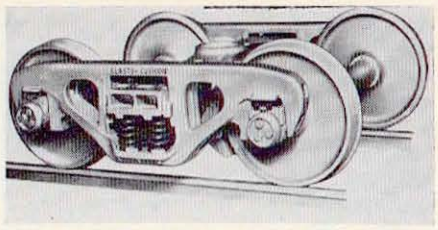
The Flagger is an on-board system which monitors an operating locomotive or transit car, determining that various key functions are within acceptable ranges and recording on a visual display when an out-of-tolerance condition occurs. By means of an optional external indicator which is a variable ACI label, information on malfunctions can be transmitted ahead through ACI scanners. In addition to the optional equipment, the Flagger basically consists of the signal processor, the heart of the system, which receives and processes indications from throughout the locomotive or car, and the display unit which cannot be reset until a maintainer breaks a seal and pushes a button. The processor receives its indications through the regular Search harness and, along with the display, can be mounted in an electrical locker or in the cab. Electronic modules receive signals from a number of sources and in addition to integrating them, incorporate time delay to assure that the malfunction is not a transient. Typical of the monitored functions are substandard loading, excessive current, hot engine, fuel level, wheel slip and ground relay action. *Oregon Technical Products.*





Intake air filter 76

The AMER-kleen Cartridge Filter, a new type designed for high-horsepower turbo-charged locomotives, is said to offer significant savings in both initial and operating costs over other types of filters. Required maintenance involves only changing the cartridges every three months. Cartridges slip out of the housing readily. Only a few minutes are required for a complete change. The cartridge was tested extensively in various operations on several railroads. Tests indicated all air cleaning requirements were met with reduced filter replacement costs. *American Air Filter.*



Freight-car truck 77

Designed to give controlled lateral in cars with roller bearings, the Elasto-Cushion truck features an elastomeric and steel pad atop each of the standard bearing adaptors. Total lateral, produced by shear in the pad, is 1 in. on 70-ton trucks and ¾-in. on 100-ton trucks. Tests and experimental service show over a 30% reduction in peak lateral loads. The result is lower stresses on rails, wheel flanges, side frames, bolster and center plate, along with reduced shocks to lading. *Buckeye Steel Castings.*

Warning light 78

The heavy-duty locomotive warning light mounts easily on switching locomotives or other units to instantly identify location with red or amber flashing beams. Ninety flashes a minute are produced by the triple sealed-beams revolving 360 deg. The rugged unit functions reliably under constant impacts of switching service and incorporates corrosion-resistant construction throughout with an unbreakable Lexan dome. Operation is on 72 volts d-c without dropping resistors since three aircraft bulbs are wired in series. No chassis ground is required because of the two-wire isolated system; radio suppression is incorporated. Motor and shaft are fitted with ball bearings. *Tripp-Lite.*

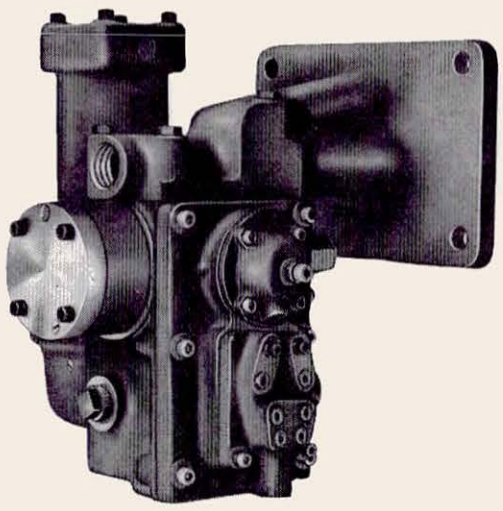
Suburban Passenger Service Rolls with...

PS-68

Built by New York Air Brake Company to suit Railroads who know what is needed.

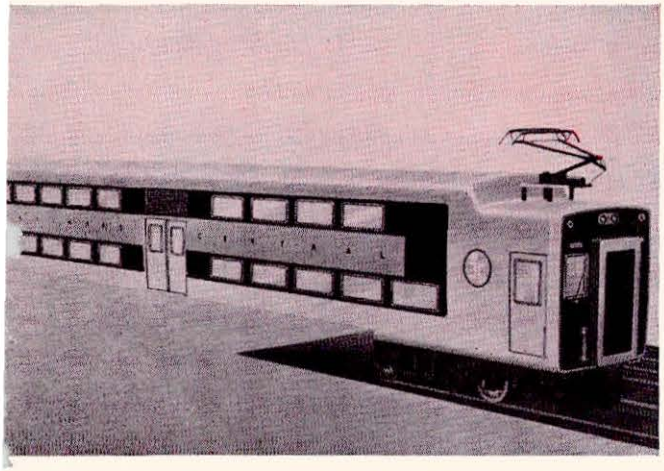
Dynamic Brake Blending Valve

Another development by NYAB...reads the brake call signal; measures the dynamic brake output and automatically adjusts the friction brake level to compensate.



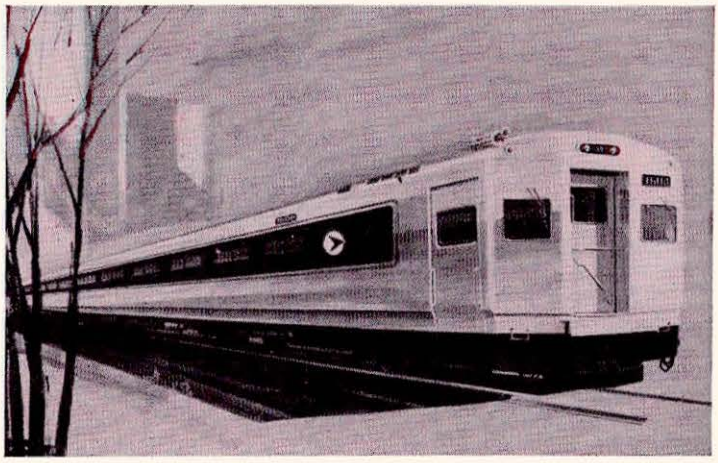
BLENDING VALVE

(Photo courtesy of St. Louis Car Co.)



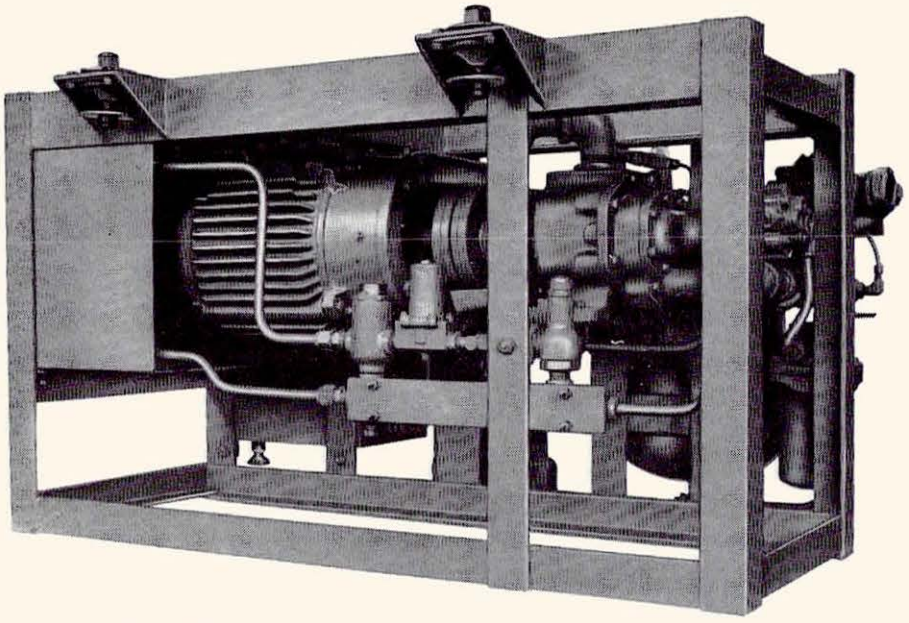
ILLINOIS CENTRAL—123 Self-Propelled Suburban Cars including Hydro Pneumatic Truck Brakes.

(Photo courtesy of Pullman Standard)



ERIE LACKAWANNA—for 105 new commuter cars for push/pull operation.

The PS-68 answers all the requirements for either self-propelled units or for push/pull suburban passenger service. It's versatile, responsive, fail-safe and full of surprising innovations. Railroads who understand the demanding braking requirements of commuter service are selecting PS-68.



The PS Compressor Unit is lighter and practically vibration free. It features a wet screw type air compressor which delivers clean, cool air. Maintenance is reduced as there are no "thrashing" reciprocating parts to wear.

MEMBER RPI RAILWAY PROGRESS INSTITUTE

NEW YORK AIR BRAKE COMPANY

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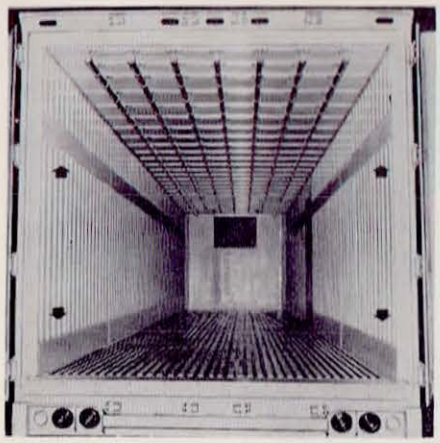


Scuff plates 79

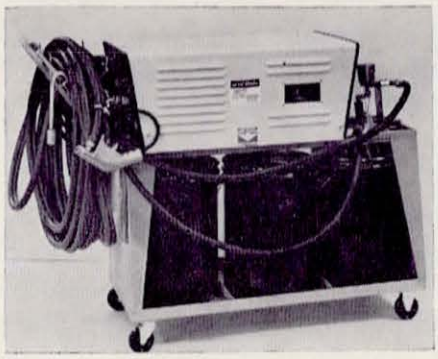
Extra durability and savings in replacement of interior liner panels of refrigerator cars, containers and trailers are claimed to result from use of Skuf-Gard fiber-glass scuff plates. These molded fiber-glass units have high impact resistance and are available in short lengths up to 12 ft. It is said to be easier, faster and more economical to repair or replace a short scuff-plate section; the section length also facilitates repair or replacement of a damaged liner panel. These plates are of a high impact-resistant and abrasion-resistant fiber-glass-reinforced polyester composite. Matched metal dies assure close tolerance and high surface smoothness. *Molded Fiber Glass Products Co.*

Hydraulic jacks 80

The RMC hydraulic jacking system for spot car repair systems involves a pair of outside-the-rails 75-ton jacks and may incorporate a between-the-rails 150-ton jack, all powered on a single hydraulic pumping unit. Maximum lift is 5 ft and a car can be raised in 25 sec. The center jack is used for cars which cannot be raised at the ends of the bolster and may be used during center-plate repairs and for journal box servicing and spring replacement when trucks have no spring plank. Construction of the side jacks makes unnecessary any traversing feature; a car may be lifted at the truck bolster. *Railway Maintenance Corp.*

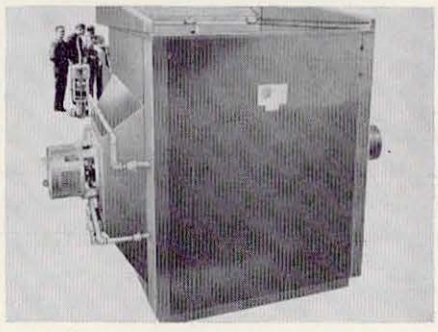
Resilient liners 81

Polyurethane materials, available in a wide range of shapes, sizes and hardnesses, can be used for shock absorption, cushioning, load-bearing pads and wear liners. Super abrasion resistance is obtained with the ceramic/urethane composites which are utilized as thrust washers where heavy duty pivoting is a problem—including center plate liners for railroad cars and fifth-wheel assemblies for highway trailers. The composite permits direct use of castings without machine finishing. *Gallagher Corp.*



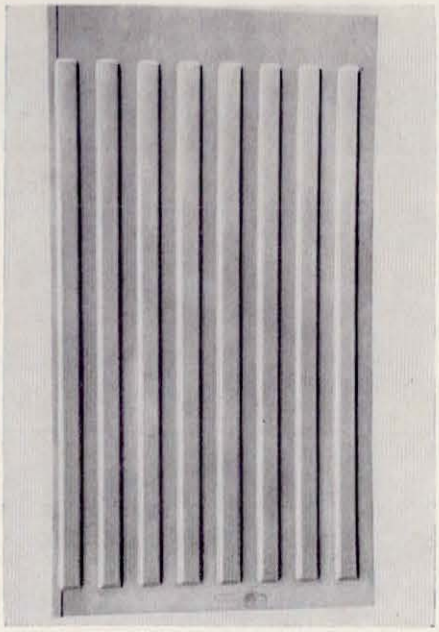
Pressure cleaner 82

The Hydro Blitz 700, a high-pressure mechanized cleaning unit, functions four times faster than manual methods. The unit has a heavy-duty triplex pump designed to provide extremely high pumping efficiency. It delivers 3 gpm of water at 700 psi and employs crankcase-type lubrication to minimize periodic attention. By mounting Hydro Blitz on a drum of detergent, the system is ready for operation. It provides jet-power cleaning at temperatures up to 160 deg F, changing to a water rinse with a flick of the switch on the cleaning wand handle. For complete maneuverability, the Blitz Mobile wheeled unit may be used. *Oakite Products.*



Cleaning tanks 83

Each of the series of Turbulator cleaning machines is designed to expose parts to four separate and distinct high-velocity flow patterns during every cycle. Turbulators are available in seven standard sizes for both cube and rectangular baskets; all are designed to occupy a minimum of floor space. Square tanks have two propellors facing each other; rectangular tanks have four. All components are designed to resist the effects of cleaning solutions. *Turco Products.*



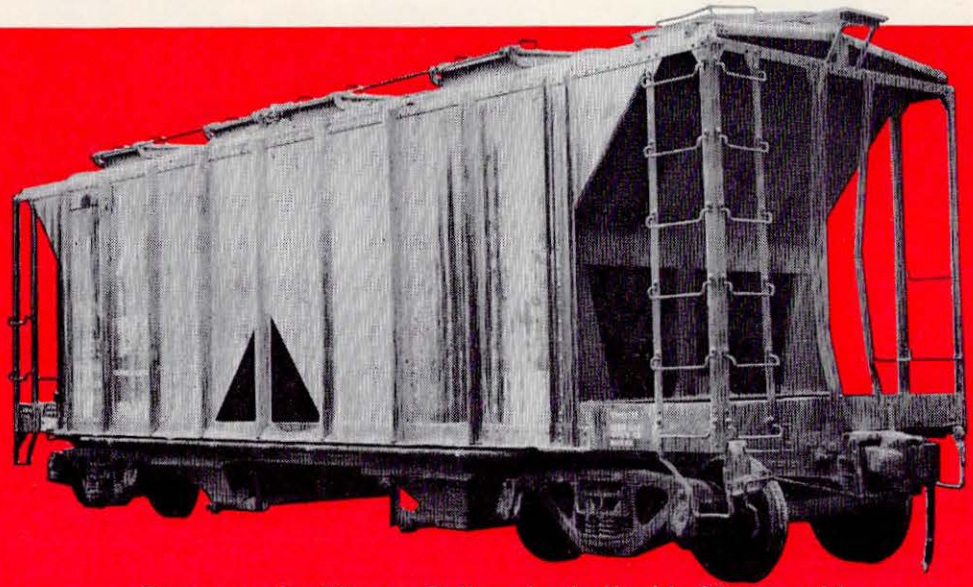
Liner panels 84

Standing and inverted-rib Glasbord panels are now available for lining refrigerator cars and piggyback trailers. The panels, produced of fiberglass-reinforced plastic, are available in a variety of sizes and styles, including door linings. Lengths range from 88 to 120 in.; widths can vary from 37 to 49 in. with 1-in. offsets for covering 36- and 48-in. sections. Ribs are on 6-in. centers. Panel thickness is 0.120 in. and weight is 1.1 lb per sq. ft. Forming is done in high-pressure matched-die molding presses with a resin rich surface giving extra scratch resistance and cleanability. *Kemlite Corp.*

Incinerating toilet 85

The Model 55 Rail-Head dry sanitary toilet eliminates waste by incineration. It has greater capacity than previous models, operates completely cool and has an improved cabinet design. Rail-Head can be used in locomotives, cabooses, bunk cars, business cars and shops where direct disposal of wastes without pollution is required. The unit reduces waste into a sterilized, harmless vapor; it has a forced-air venting system. Its installation does require a gas or

Stanray roofs can make your hopper cars more profitable the second time around.



For example, Monon Railroad rebuilt this 20-year old square-hatch car with a Stanray round-hatch roof, a coat of paint and put it back in service, better than ever, at a great savings in time and expense.

Aside from the obvious savings incurred in rebuilding existing cars versus buying new ones, Stanray roofs can even make the rebuilding more profitable.

First of all, our roofs are corrugated. This corrugated design eliminates need for reinforcements. It also means lighter weight and a minimum of assembly work. Another way you save with Stanray is on long range protection. Our integral round-hatch roofs have an extremely low design which deters buildup of corrosive materials around the hatches. So, they'll hold up better over the years than the old-fashion high standing square-hatch roof.

We'll custom build your roof as to material thickness and number of hatches and then give you the option to save additional money. If you wish, we'll ship your roof assembled, including running boards, or we'll knock it down and ship it so that your own people can assemble it.

See why more and more lines are learning that doing business with Stanray is a very profitable way to run a railroad?

STANDARD RAILWAY EQUIPMENT
division of STANRAY CORPORATION
Chicago • Hammond, Indiana

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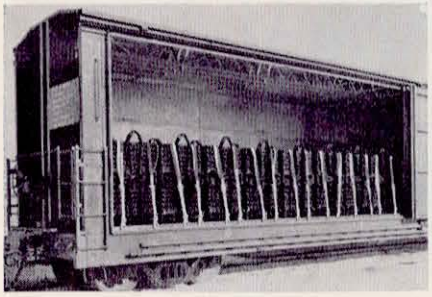
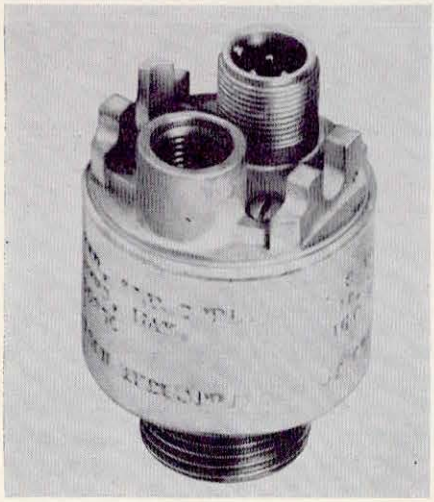
fuel-oil supply, electric connection and flue for venting. *LaMere Industries.*



All-door car 86

The Thrall Door Box car, redesigned for a special shipper requirement, has 100-ton trucks and certain structural changes to accommodate 100-ton loads. The customer, Esco Corp., ships castings loaded in containers between plants and finds substantial savings in loading and unloading operations because of the 25-ft door openings. *Thrall Car.*

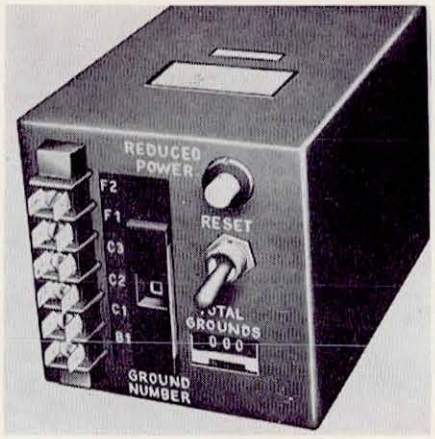


Pressure detector 87

A pressure detector with high-level resistance output has been found suitable for many liquids and gases. The detector is small, rugged, accurate, reliable and intended for service at elevated temperatures in severe environments. A diaphragm is used to produce the electrical signal in conjunction with an arcuated contact. Unit may be operated from both a-c and d-c sources. *Thomas A. Edison Industries.*

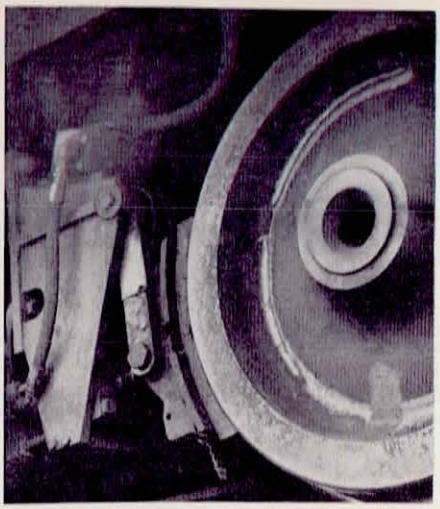
Bulkhead flat cars 88

The 68-ft flat car, built to Trailer Train specifications, is available with various options for handling different products. Equipped with high permanent bulkheads, the 90-ton flat cars can haul lumber, gypsum board, plaster board, plywood and similar products. Chain tie-downs are standard on all models. The cars will soon be available with adjustable low bulkheads for hauling steel plates. *Bethlehem Steel.*



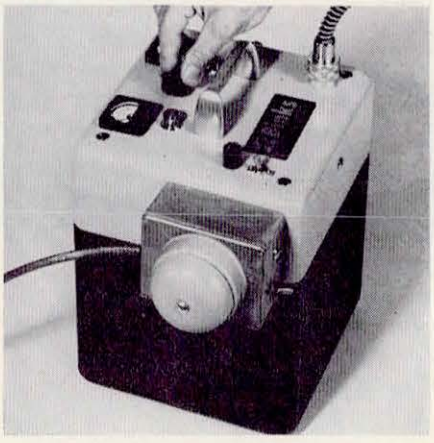
Ground reset limiter 89

The automatic ground reset limiter, a protective device for reducing locomotive traction motor damage, automatically restores a tripped ground relay after allowing 10 to 20 seconds delay for discharge of hot flashover gases. After counting and resetting four consecutive grounds, the unit locks out the relay on subsequent faults, then requiring that corrective measures be taken before the protective unit will again function. An optional power reduction unit allows for continued locomotive operation at reduced power after the fourth ground, serving to protect electrical equipment. *Vapor Transportation Products Division.*



Hydraulic brake 90

A transit-car package brake system which uitilizes hydraulics has been designed to produce rapid and positive responses to deceleration signals. Composition shoes are utilized. The system is currently undergoing tests on a car in regular service and is scheduled for application to eight more cars next year. The 600-psi hydraulic pressure is produced by a motor-driven pump. The solid-state control is actuated from the P-wire trainline and functions in conjunction with the dynamic braking on the car. Brake effort is varied with passenger load. A slip/slide detection system is installed on each of the car's axles. *Abex Railroad Products Division.*



Spray gun power supply 91

A new power supply for both hand and automatic electrostatic spray guns incorporates a number of special safety features. A current-limit switch reduces the chances of a hazardous electrical discharge by de-energizing the Power Pak when current drain exceeds 250 microamperes. Also, a special circuit keeps a constant check on the third-wire ground and will de-energize the unit in case of malfunction. *Binks Manufacturing Co.*

Mansion House Center, Suite 601 North Tower, St. Louis, Mo., 63102, **Loren B. Hamby,** manager–trailer control at East St. Louis, transferred to St. Louis.

WESTERN PACIFIC.—Robert E. Gonsalves, director of passenger sales, named to the newly created position of manager-office services. **William J. Powell,** manager of dining car services, appointed assistant manager of personnel.

OBITUARY

Charles C. Dawes, 71, retired vice president, **Monon,** died July 30 in Sherman Hospital, Elgin, Ill.

David T. Faries, chief engineer, **Bessemer & Lake Erie,** died Aug. 1 in Greenville, Pa. Hospital.

Stanley D. Forsythe, who retired in 1961 as general superintendent of engineering, **Chicago Transit Authority,** died in an automobile accident near Rochester, N.Y., on Aug. 15.

Fred S. Pfahler, 86, retired vice president, **Chicago & North Western,** died Aug. 8 in Kankakee, Ill.

Malcolm S. Seay, 65, retired advertising manager, **Santa Fe,** died Aug. 1.

James A. Stolp, 50, regional public relations representative, **Burlington Northern,** Chicago, died Aug. 5 in Kansas City, Mo.

DIVIDENDS DECLARED

BURLINGTON NORTHERN.—37½¢, reduced, quarterly, payable Nov. 12 to holders of record Oct. 16.

CHESAPEAKE & OHIO.—$1, quarterly, payable Sept. 21 to holders of record Sept. 1.

DENVER & RIO GRANDE WESTERN.—27½¢, quarterly, payable Sept. 17 to holders of record Sept. 3.

ILLINOIS CENTRAL INDUSTRIES.—28½¢, quarterly; IC $3.50 Preferred, 87½¢, quarterly, both payable Oct. 1 to holders of record Sept. 4.

LOUISVILLE & NASHVILLE.—$1, quarterly, payable Sept. 15 to holders of record Sept. 1.

MISSOURI PACIFIC.—$1.25 quarterly payable Sept. 30 to holders of record Sept. 18.

NORFOLK & WESTERN.—$1.25, reduced, quarterly, payable Sept. 10 to holders of record Aug. 10.

PITTSBURGH & WEST VIRGINIA.—12¢, reduced, quarterly, payable Sept. 30.

RICHMOND, FREDERICKSBURG & POTOMAC.—Common, $1.75, quarterly; 6% and 7% gtd., $1.75, extra, all payable Oct. 13 to holders of record Oct. 1.

ST. LOUIS-SAN FRANCISCO.—60¢, quarterly, payable Sept. 15 to holders of record Sept. 1.

SANTE FE INDUSTRIE.—40¢, quarterly, payable Sept. 1 to holders of record July 31.

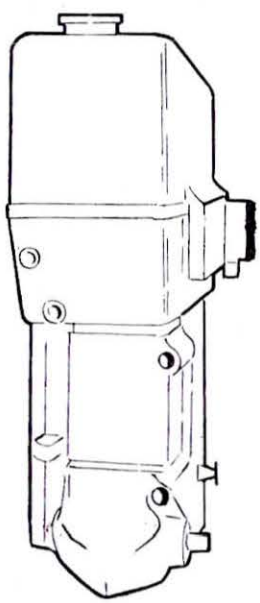
SEABOARD COAST LINE.—55¢, quarterly, payable Sept. 16 to holders of record Sept. 1.

SOUTHERN.—Common, 75¢, quarterly; preferred, 25¢, both payable Sept. 15 to holders of record Aug. 14.

UNION PACIFIC.—50¢, quarterly, payable Oct. 1 to holders of record Sept. 8.

WESTERN MARYLAND.—Common, 40¢ quarterly; 5% Preferred, 15¢ quarterly; 7% Preferred, 70¢ quarterly. All payable Sept. 30 to holders of record Sept. 15.

Specialists in Fuel Injection and Governors



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Most type Railroad Governors, Fuel Pumps and Injectors. Saves time and money, with full warranty.

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Third & Mill Sts., Coraopolis, Pa.

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BUILT RIGHT from the trucks up

OHIO Locomotive Cranes deliver years of uninterrupted railroad service.

OHIO designs and builds only locomotive cranes. From trucks to boom tip, you're assured years of rugged, dependable uninterrupted sevice with minimum maintenance. Built-in quality includes:

AAR approved trucks with rubber-cushioned suspension.
Ball-race rotation.
Positive boom hoist.
Full view cab with fingertip operator's console.
Powerful traction motors field shunting available.

Five diesel/electric models offer capacities from 25 to 80 tons. A complete list of options let you tailor a unit specifically to your operating needs.

If you're considering a locomotive crane, let us show you why the OHIO nameplate assures you a crane that's built right . . . trucks to tip. We'll be glad to work with you.

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meet a family of Griffins

From left to right: Our family of Griffins. Together, they make up the finest line of steel wheels offered today.

All are pressure poured by the exclusive Griffin process in modern plants, geographically located to give immediate service. The wheels are made in permanent graphite molds, and this virtually eliminates wheel variances in any one size. And because they are pressure poured, you can count on more miles of trouble-free operation.

For more than 90 years Griffin has been giving railroad men the best in wheels. We expect to keep on rolling.

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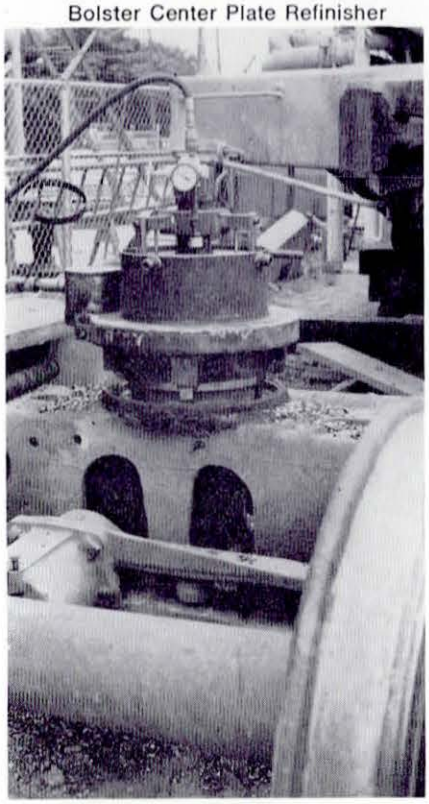
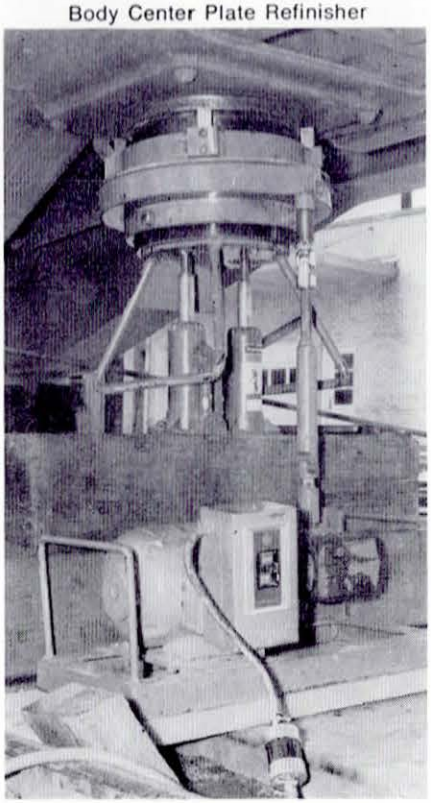
Refinish Truck and Body Center Plates at Practically Every Rip Track Facility

Bolster Center Plate Refinisher



Body Center Plate Refinisher



FreightMaster®
CenterPlate Refinisher

Now, at any rip track where pneumatic and electric power are available, FreightMaster's new Center Plate Refinisher recontours worn body and truck bolster center plates to AAR specifications, in a minimum of time.

The equipment's "bring the tool to the job" concept sets new levels of economy and efficiency for refinishing procedures. There's no need to dismantle trucks to send to outside shops. The total job can be completed in 30 to 45 minutes with available personnel.

Contact FreightMaster for complete details on how this new portable equipment can help you convert every rip track into a money and time saving center plate refinishing facility.

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TRANSIT

Henry Sears Lodge has been sworn in as chairman of the **Massachusetts Bay Transportation Authority,** succeeding **Robert C. Wood,** who has been named president of the University of Massachusetts. Still to be named is a general manager to replace **Leo J. Cusick,** who resigned.

SUPPLY TRADE

Robert E. Vey has been named sales representative, **Buffalo Brake Beam Co.** and **Unit Truck Corp.,** Lackawanna, N.Y.

Thomas J. Johnson, railroad sales representative, **American Steel Foundries,** has been transferred from Chicago to St. Louis.

Raymond R. Wingard, manager, Western Region, Railroad Sales and Planning Department, **Koppers Co.,** Pittsburgh, has been appointed an assistant vice president, Forest Products Division.

Eugene J. Cordani has been named product engineer-flat cars, **Amcar division, ACF Industries,** St. Charles, Mo.

Murray P. Forhan has been named general manager of manufacturing, **Fruehauf Railcar Division, Fruehauf Corp.,** Clifton, N.J.

Harry W. Pettit has joined Fruehauf Railcar as chief engineer.

Raymond E. Dryden has joined the division as manager of quality control.

WABCO has announced that its European operations purchased the railway brake control valve business of **Ateliers de Charmilles, S.A.,** Geneva, Switzerland.

Gordon L. Graham, district manager, central region, **Electro-Motive Division, General Motors,** has been promoted to regional sales manager, western region, San Francisco, succeeding **Floyd E. Von Ohlen,** who retired recently after 28 years of service. Mr. Graham is succeeded by **George C. Mulick,** former manager of the marketing section.

Paul W. Chartrand, president of **Power Products** and **Van der Horst Corp. of America,** South San Francisco, Calif., has been named president of **Van der Horst de Mexico,** Guadalajara, Mexico.

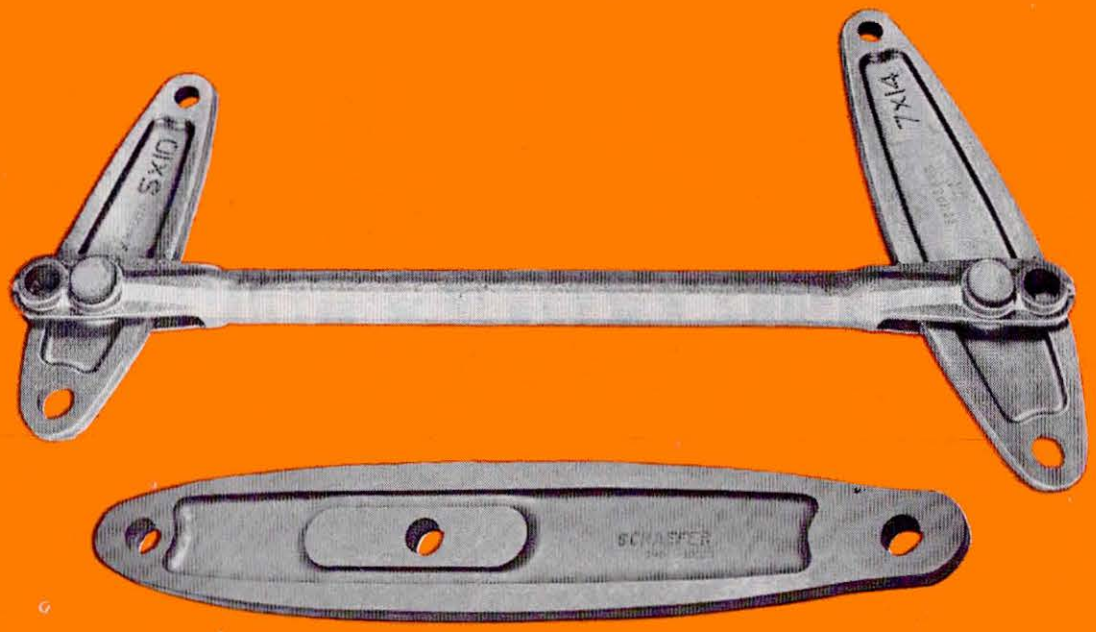
David R. Pratt, manager of wheels, axles and special products sales, railroad products sales division, **Bethlehem Steel Corp.,** Bethlehem, Pa., retired June 30, after 42 years of service.

Murray J. Franklin has been elected vice president—operations staff, **WABCO,** Pittsburgh. He also has been appointed director—operations staff, Industrial Products Business of American-Standard. Mr. Franklin was formerly group vice president, Hayes-Albion Corp., Jackson, Mich.

E. Blake Brenneman has been appointed manager, Cobra Shoe sales, **Westing-**

Schaefer

CAR LIFE SERVICE



An Original Application of Schaefer Brake Appliances—Then, No Maintenance Nor Replacement During the Life of the Car

Conventional Brake Rigging Provides the Most Reliable and Economical Braking System

SCHAEFER EQUIPMENT COMPANY

Koppers Building • Pittsburgh, Pa.

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Casey Jones never had it so good.

No wonder Casey was in such a hurry! His only alternative was an unsanitary, unpleasant railroad toilet. Now there's a sensible, simple, low-cost replacement for those old-fashioned units — the radically different Monogram Model 12800 NEW-matic flushing toilet. Easy to install — it's completely self-contained and runs on your existing air system. Needs no electricity, no holding tank, no separate water supply. Easy to maintain — needs only monthly servicing. Immune to freezing temps and has only ONE moving part for years of trouble free service. Odorless, silent, clean. Send today for more information on the dependable NEW-matic — a sure, economical way to solve your sanitation problems.

MONOGRAM INDUSTRIES, INC. Venice Division

Model 12800

Monogram Industries, Inc.
3226 Thatcher Ave., Venice, Calif. U.S.A. 90291
Please send brochure on Model 12800 NEW-matic toilet.

Name _____ Firm _____ Address _____ City _____ State _____ Zip _____

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house Air Brake Division of **WABCO,** Pittsburgh. He was formerly manager-Cobra Shoe engineering.

Rudi Lind, joint managing director of Westinghouse Bremsen- und Apparatebau G.m.b.H., Hannover, Germany, has been appointed a vice president of **WABCO/ Europe.**

Walter A. Buchanan, Jr. has been appointed director of manufacturing, **Amcar division, ACF Industries.** Mr. Buchanan was formerly manager of the divisions's Milton, Pa., plant.

Paul Dashine, president and chief executive officer, **Okonite Co.,** Ramsey, N.J., has been elected to the additional post of chairman of the board.

Albert E. Kerr has been appointed vice president-operations, **Bucks Division, Desa Industries,** Cincinnati, Ohio.

John A. Davies has been elected vice president-**Equipment Division, REALCO SERVICES, INC.** Mr. Davies was formerly director of the division.

William C. Egan has been named president, **Carrier-Transicold Co.,** newly formed division of **Carrier Corp.,** Syracuse, N.Y. **Carrier Air Conditioning Co.** has announced that it will produce and market all of its truck, trailer, container, marine, rail, bus and air transportation equipment and systems under new Carrier-Transicold brand name.

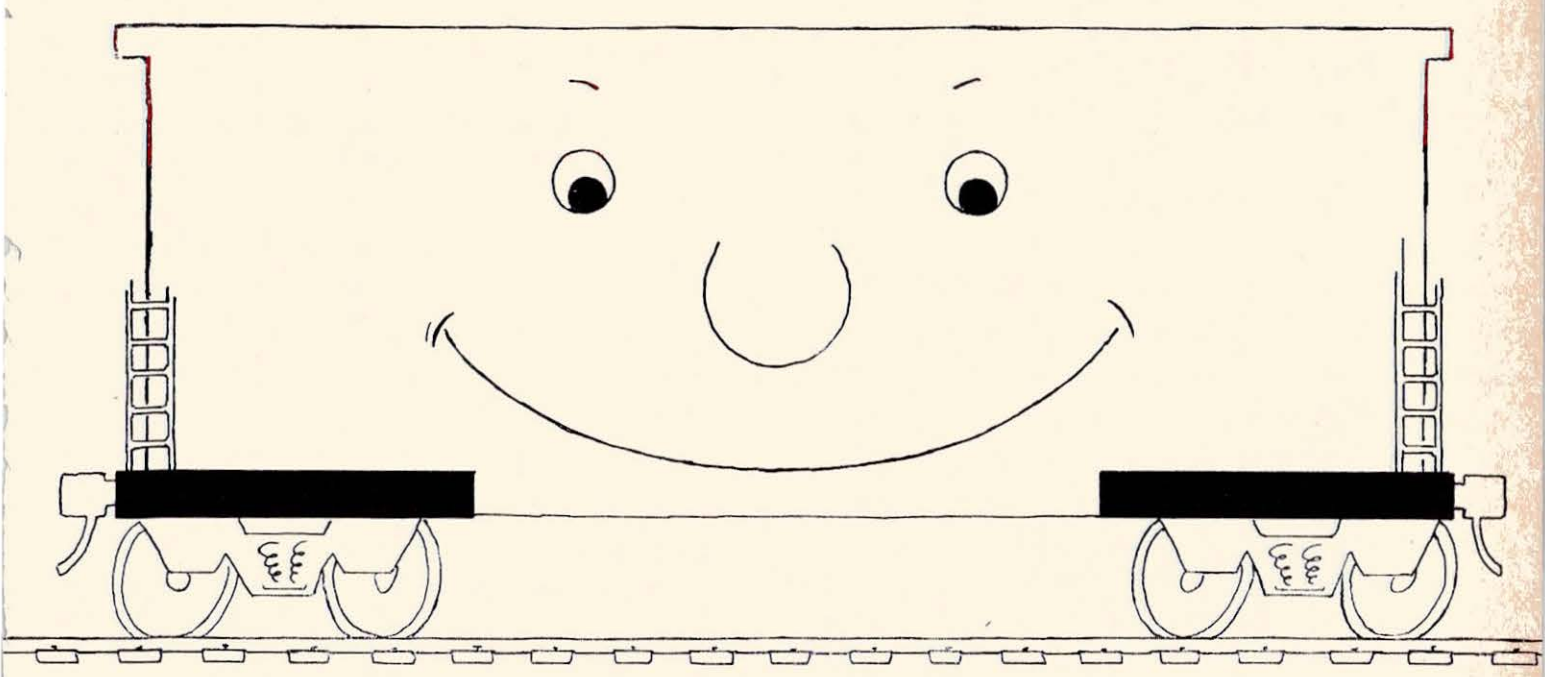
Gary D. Ridenour has been appointed manager Pittsburgh district sales office, **Chicago Pneumatic Tool Co.,** succeeding **A. J. Chevalier,** retired after 33 years of service.

Kenneth D. Johnson, vice president, executive department, **ACF Industries Incorporated,** New York, has been elected executive vice president.

Frank Orovitz has been named president of a new company, called **Kencomp, Inc.,** established in Lexington, Mass., to supply computer software services to the transportation industry. The company is a subsidiary of **Thomas K. Dyer, Inc.,** consulting engineers of Lexington. Mr. Orovitz was formerly senior analyst for software projects, **Mathatronics,** Waltham, Mass.

Ralph A. Molinari, vice president of sales, **Railroad Accessories Corp.,** Minneapolis, Minn., has been appointed vice president and general manager, Louisville, Ky., succeeding **W. W. Beard,** retired. **R. Dan Birt,** signal engineer, promoted to chief engineer, Minneapolis, succeeding **William O. Reinitz,** transferred to Louisville. **M. L. Liford,** former circuit engineer, regional office, **Penn Central,** Indianapolis, has joined RACO as sales and service representative, Indianapolis. **Joseph D. Aldern,** sales and service representative Philadelphia, appointed general sales manager, Minneapolis.

Larry B. Miller has been appointed director of marketing, Transportation Division, **The Binkley Co.,** Warrenton, Mo.



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LETTERS

Federal aid to transit

Washington, D.C.

To the Editor:

Many thanks for doing an excellent job on the article ("A 10-year, $20-billion transit market") in the Aug. 10 issue of Railway Age. It really brings out the more important aspects of the bill [Urban Mass Transportation Assistance Act of 1970] and this Administration's goals, and is especially apropos at this time.

Carlos Villarreal
Administrator
Urban Mass Transportation Administration

Who was first?

New York

To the Editor:

I was a little surprised to note in the "Letters" column of the Aug. 10 issue that Mr. James C. Pontious, the Manager, Transit Marketing of Pullman-Standard, presumed to correct you on certain alleged articles in your April 13 article concerning the Rohr Corp. and the new cars for the Bay area Rapid Transit System and then went on to add a significant error of his own to the discussion.

My reference is to Mr. Pontious' statement that "You may recall that the Chicago Transit Authority cars were the first successfully air-conditioned transit cars and included aluminum extrusions running the full length of the car and fiberglass front ends." While I can appreciate Mr. Pontious' enthusiasm for his firm's products of 1964, these cars definitely were not "the first successfully air-conditioned transit cars."

That honor went six years earlier to the production run of 50 air-conditioned cars built in 1958 by the St. Louis Car Division of General Steel Industries for the Hudson & Manhattan and the Pennsylvania, which assigned them to their joint service operation between Newark, N.J., and Hudson Terminal in lower Manhattan. The design of the air-conditioning equipment of these cars was based on experience of the H&M in successfully air-conditioning two of its old "black" cars in 1955. With the exception of three cars retired after an accident, the precedent-breaking 1958-built cars, performing very satisfactorily with their original air-conditioning equipment, remain in use today on the Port Authority Trans-Hudson system—successor to the H&M.

Philip G. Craig
Editor, Headlights

(Mr. Pontious replies: "I believe the difference of opinion revolves around one of semantics, namely, the definition of a transit car. The 50 cars mentioned by Mr. Craig were built for operation on interstate railroads (Hudson & Manhattan and Pennsylvania) and, hence, were designed to meet AAR and ICC requirements. Transit cars are not required to meet AAR and ICC regulations, have much lighter-weight construction and the CTA cars were the first to be successfully air conditioned.")

Oldest subscriber?

Cambridge, Mass.

To the Editor:

I hereby lay claim to being the oldest living continuous subscriber to Railway Age. I can't remember the exact date, but I first subscribed circa 1923. Any contestants?

Herbert E. Bixler
Vice President
Systems Analysis and Research Corp.

BOOKSHELF

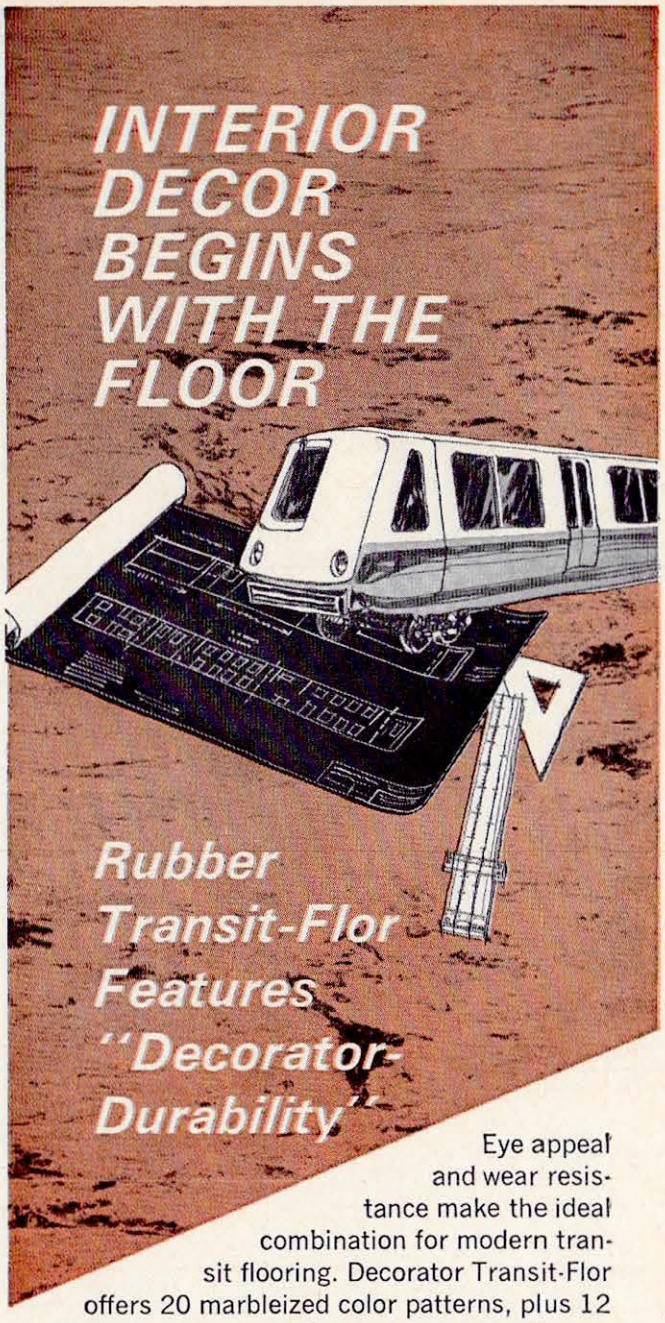
PIONEERING THE UNION PACIFIC by Charles Edgar Ames (Appleton-Century-Crofts, New York, $10.95). When a descendant of Oakes Ames, who became embroiled in the Credit Mobilier scandal, attempts to analyze the finances of the early Union Pacific, you might doubt his objectivity. However, Charles Edgar Ames has done a scholarly analysis of the intricate and extremely risky financing associated with producing the longest segment of the nation's first transcontinental rail line. There are 608 pages, including 32 of illustrations, which portray the battles of personalities and the legal squabbles, as well as telling the story of overcoming the natural obstacles encountered in crossing the plains and mountains of the American West in the 1860s.

WORKING ON THE RAILROAD, compiled by Richard Reinhardt (American West Publishing Co., Palo Alto, Cal., $8.95). "Good railroad literature is rare and scattered," observes the editor of this 318-page volume. "The railroad man, for all his historic importance, his archetypical stature and his economic power, has achieved only a minor position in American literature . . . There must be some intrinsic quality in railroading itself that has resisted literary exploitation." He notes that the technology, financing, operations, and legal and regulatory problems are well documented. Surveyors, section men, telegraphers, conductors, engineers, brakemen, boomers, porters and firemen tell their stories in this book.

RAILWAY ACCIDENTS OF GREAT BRITAIN AND EUROPE by A. Schneider and A. Mase (distributed by Stephen Green Press, Brattleboro, Vt., $13.95). With typical German thoroughness, in 334 pages the authors have described fifty rail accidents in all principal nations of western Europe, dating from 1879 to 1968. While most occurred in this century, the earlier ones are included because of their technical significance. Because of available source material, and apparently not because of a different level of safety, a majority of the described accidents did occur in Great Britain, Switzerland and Italy. Say the authors: "Review of the material reveals a preponderance of those cases of which human failure is the cause, wherein overrunning of signals plays the principal part."

DOWN AT THE DEPOT by Edwin P. Alexander (Clarkson N. Potter, Inc., New York, $15.00). In virtually every American community, from the largest to the most obscure water stop, the railroad station was the focus of activity and local pride from 1831 until the 1920s. Railways lavished the best in architecture and design on these structures to attract notice, as well as customers. As a result, the nation was dotted with splendid, fanciful, beautifully engineered buildings. Many have come in for local attention recently only as they disintegrated and went unused in the face of new travel patterns and cities' willingness to take full responsibility for the terminals of competing modes of transport. In 320 pages, the author has included hundreds of illustrations of all types of stations and of the trains which stopped at them.

MODERN LOCOMOTIVE HANDBOOK will be published this fall by the Railway Educational Bureau of Omaha, a division of Simmons-Boardman Publishing Corp. It is being compiled by H. C. Eck, general supervisor of locomotive operation, C&O/B&O. The pocket-sized booklet, designed to be carried by enginemen as a guide to the equipment they operate, will cover all widely-used North American locomotives from 2,000 to 3,600 horsepower. It will be looseleaf, so it can be kept up to date.



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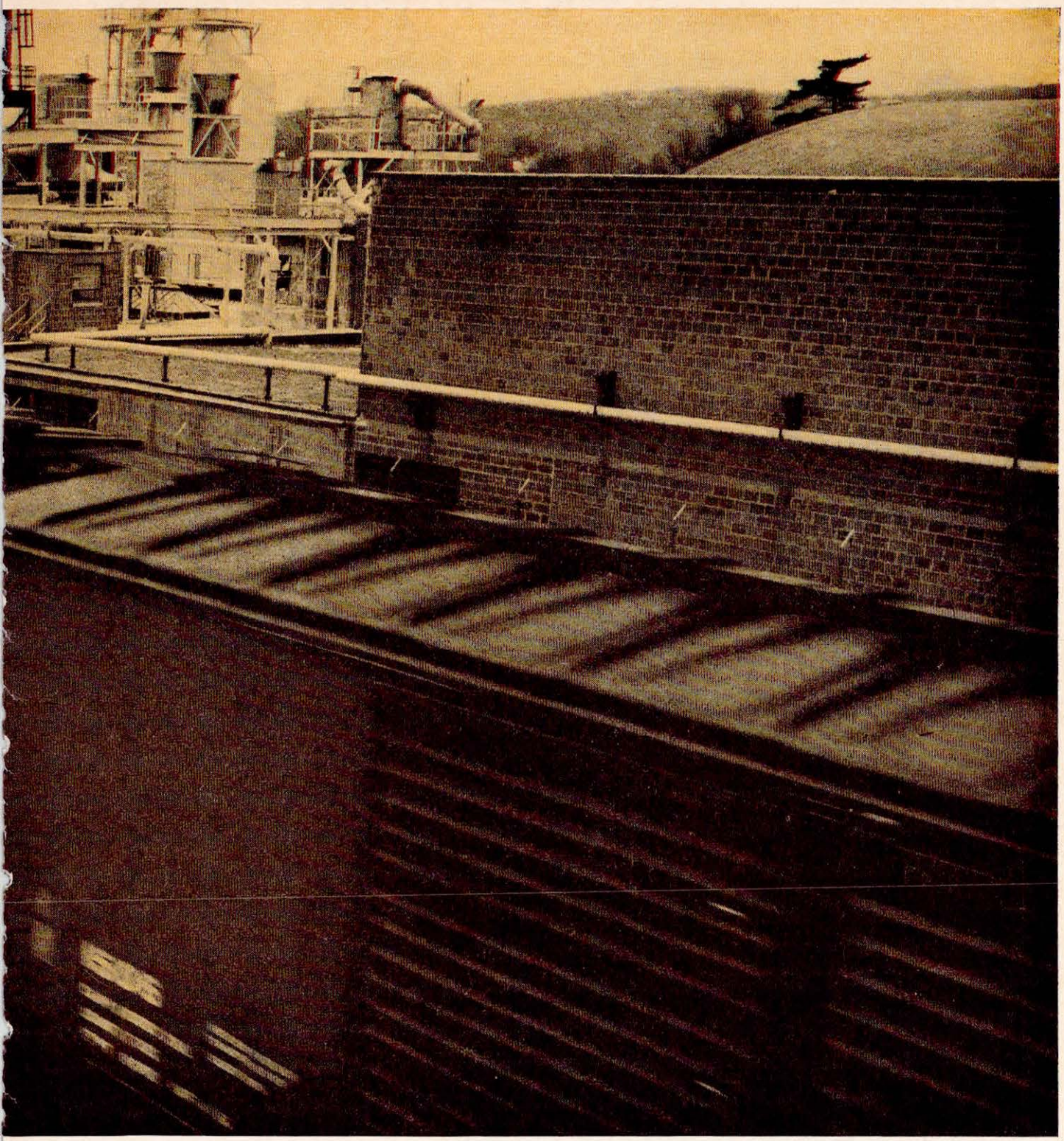

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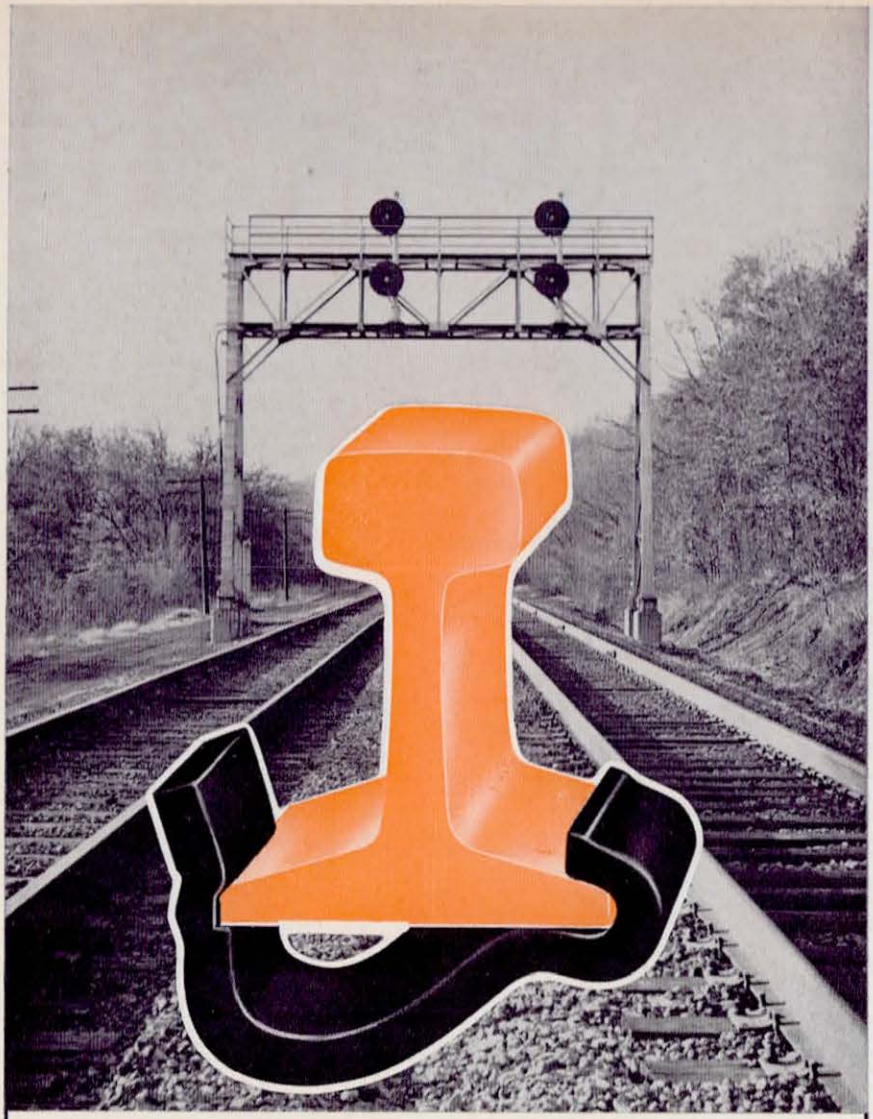

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TRANSIT ROUNDUP

WASHINGTON: The Institute for Rapid Transit and the Railway Progress Institute have joined other mass-transit groups in protesting the imposition of a $214 million limit (as proposed by the House of Representatives in an appropriation bill) on the funds which the Secretary of Transportation can obligate during the first year after enactment of the pending Urban Mass Transportation Assistance Act of 1970.

Louis J. Gambaccini, vice president and general manager of the (New York-New Jersey) Port Authority Trans-Hudson Corp. and chairman of the IRT's committee on government affairs, told a Senate subcommittee that Section 308 of H.R. 14794, the appropriation bill, would "erode seriously and further compromise the approach taken" in the pending Urban Mass Transportation Assistance Act of 1970 (S. 3154 and H.R. 18185).

Section 308 of the House-passed appropriation bill would establish a limitation of $214 million for the Urban Mass Transportation Administration in fiscal 1971. Carlos C. Villarreal, Urban Mass Transportation Administrator, has proposed raising the House-imposed limit on first-year aid to $850 million.

Said Gambaccini: "We respectfully recommend the elimination of Section 308 from the Appropriation bill currently under consideration. . . . If, as we fervently hope and expect, an authorizing bill is passed establishing a truly effective public transit improvement program, it should not be hobbled at the very outset by additional fiscal year limitations."

He added: "The compromise approach advanced in S. 3154 and H.R. 18185—both bills which we have strongly supported—provides for authority to be vested in the Secretary of Transportation to obligate up to a maximum sum—$3.1 billion in S. 3154 and $5 billion in H.R. 18185—for a five year program period of public transportation improvements. This legislation provides for advance obligational authority permitting local agency multi-year projects to advance on the basis of contracts with the Federal government.

"This is an essential ingredient to permit orderly development, planning and commitment by state and local agencies for major long-term public works. This has been proved essential in highways and other major public works projects.

"Cities need the assurance of a long-term commitment of Federal aid to transit if they are to develop and implement financial programs on their own, including long-term bond issues, and the

undertaking of long-term projects without further delay." (RA, Aug. 10, p. 25.)

WMATA: Washington's Metropolitan Area Transit Authority said Sept. 2 it is studying the possibility that service on the first six miles of its Metro may not begin until 1974, a year later than originally planned.

Until last year, first service on the Metro was scheduled to begin in December 1972. It was subsequently put back to mid-1973 because of delay in the start of construction when Congress refused to release Metro funds until the D.C. Government agreed to proceed with construction of controversial freeway legs.

Rep. William H. Natcher (D.-Ky.), chairman of the House District Appropriations Subcommittee, has again refused to release current Metro funds until freeway construction proceeds to his satisfaction.

WMATA officials said no change is contemplated in the scheduled late-1979 start of service over the full 98-mile rapid transit system.

BALTIMORE: A $600,000 preliminary engineering study for Phase I of a rapid transit system will be undertaken with $400,000 in Federal funds and a $200,000 state grant. Phase I contemplates a line from downtown Baltimore to the northwestern suburbs and a line from Charles Center south to Glen Burnie and Marley, with a Friendship-airport branch.

BOSTON: Delay in final approval of Federal transit-aid legislation in Washington prevented the Massachusetts General Court from acting on a request of Massachusetts Bay Transportation Authority for a $300-million additional bond authorization. "Had Federal aid been forthcoming, our bond authorization legislation may have been acceptable and thus permitted us to complete our program for mass transportation that is designed to extend and improve transit service in the Boston region," said Dr. Robert C. Wood, retiring chairman of MBTA's board of directors. He expressed confidence that the Federal aid would become available next year.

PITTSBURGH: A six-week "Professional Program in Urban Transportation" will be offered by the Transportation Research Institute, Carnegie-Mellon University, Oct. 5-Nov. 14. It includes four weeks of intensive work at the university's Pittsburgh campus, plus two weeks of studying transit systems in Canada and Europe. Estimated total expenses: $3,750. Fellowships are available to qualified transit personnel.

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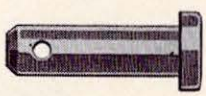

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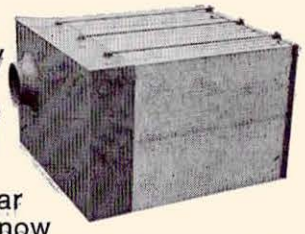

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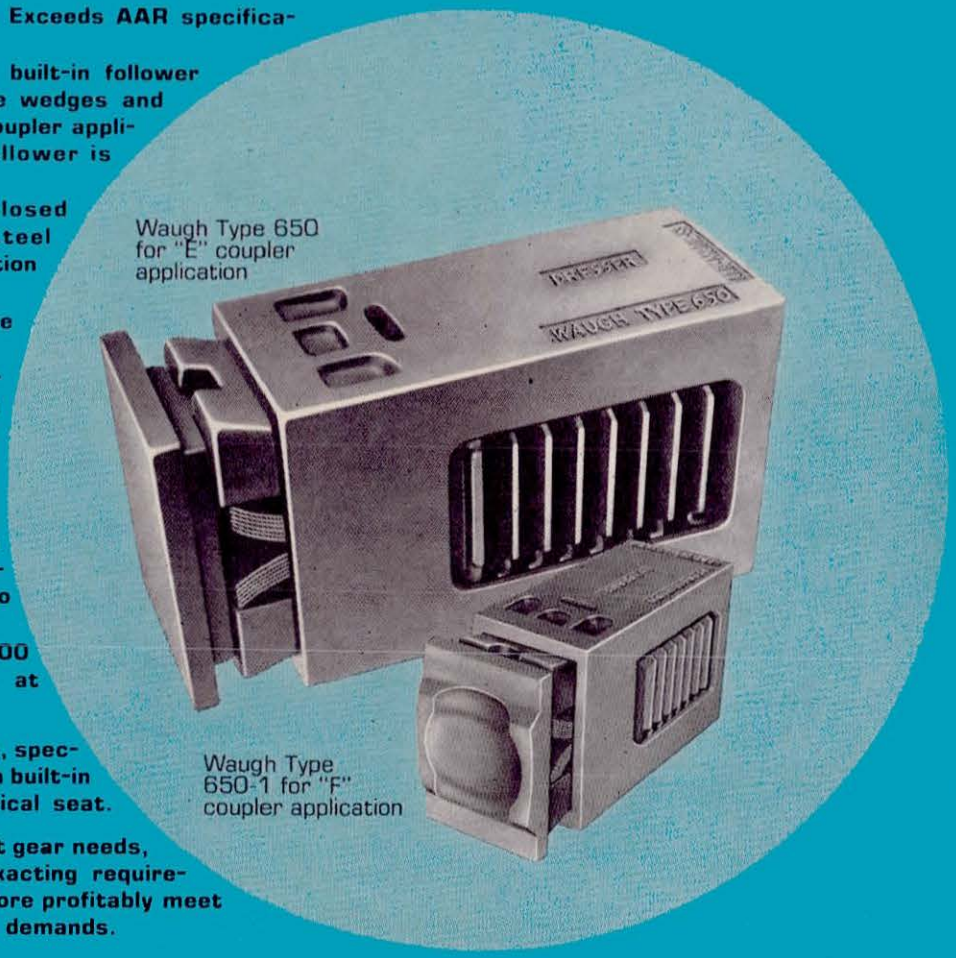

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Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended August 29 totaled 553,522 cars, the Association of American Railroads announced on September 3. This was an increase of 9,532 cars, or 1.8%, compared with the previous week; a decrease of 25,971 cars, or 4.4%, compared with the corresponding week last year; and a decrease of 20,324 cars, or 3.5%, compared with the equivalent 1968 week. Ton-miles generated by carloadings in the week ended August 29 are estimated at 15.0 billion, a decrease of 2.7% below the corresponding week of 1969, and 2.4% above the 1968 week.

REVENUE FREIGHT CARLOADINGS

	Aug. 29 week	Aug. 22 week
Grain	31,493	30,576
Farm products	10,636	10,925
Metallic ores	52,245	54,979
Coal	105,127	101,634
Crushed stone, gravel & sand	34,727	34,415
Nonmetallic minerals	11,579	11,570
Grain mill products	19,315	19,122
Food & kindred products	25,307	24,564
Primary forest products	25,246	25,733
Lumber & wood products (except furniture)	15,545	14,736
Pulp, paper & allied products	23,587	23,257
Chemicals & allied products	25,330	25,087
Petroleum products	10,079	9,980
Stone, clay & glass products	20,796	20,554
Coke	7,174	7,970
Metals & products	25,081	23,939
Motor vehicles & equipment	20,417	18,002
Waste & scrap materials	14,467	14,100
Forwarder & shipper assn. traffic	7,479	7,026
All other carloads	67,168	65,113
LCL traffic	724	708
Total cars loaded	553,522	543,990

CUMULATIVE TOTAL, 35 weeks	1970	1969	1968
	18,287,395	18,717,824	18,923,158

Estimated revenue ton-miles (billions) 35 weeks	511.6	509.6	499.2

PIGGYBACK CARLOADINGS

U. S. piggyback loadings for the week ended August 22 totaled 24,812 cars, carrying 39,730 trailers, compared with 26,955 cars, carrying 44,056 trailers, in the corresponding 1969 week. Loadings for 1970 up to August 22 totaled 830,383 cars, carrying 1,377,648 trailers, compared with 869,960 cars, carrying 1,425,211 trailers, in the corresponding period of 1969.

IN CANADA

7 days ending	Revenue Cars Loaded	Cumulative Totals
Aug. 14, 1970	75,403	2,352,644
Aug. 14, 1969	61,508	2,234,073

FREIGHT-TRAIN CARS

● *Cleveland Electric Illuminating.*—Leased 295 aluminum and steel gondola cars from Greenville Steel Car at a cost of $6 million for unit-coal-train service. Two 119-car trains will be operated by Penn Central from southeastern Ohio mines to CEI's generating facilities along Lake Erie. Additional cars will be available for maintenance and for haulage at CEI power stations. Deliveries of the 108-ton capacity cars have started and will continue until February 1971.

● *Orders and deliveries.*—Orders were placed for 4,340 new freight cars in July, compared with 5,218 in the preceding month and 5,747 in July 1969. In addition, 295 cars were ordered rebuilt in July, compared with 127 in June and 1,843 in July 1969. New cars on order and undelivered on Aug. 1 totaled 29,040, compared with 30,149 on July 1 and 51,233 on Aug. 1, 1969.

FREIGHT TRAIN CARS DELIVERED AND ORDERED AND BACKLOG OF ORDERS

DELIVERED

	July 1970	June 1970	July 1969
Built new by car builders	4,457	4,478	3,770
Built new in R.R. shops	989	1,637	1,091
Built new—total	5,446	6,115	4,861
Rebuilt	844	721	761
TOTAL DELIVERED	**6,290**	**6,836**	**5,622**

ORDERED

To be built new by car builders	4,226	3,487	3,047
To be built new in R.R. shops	114	1,731	2,700
To be built new—total	4,340	5,218	5,747
To be rebuilt	295	127	1,843
TOTAL ORDERED	**4,635**	**5,345**	**7,590**

ON ORDER AND UNDELIVERED

	Aug. 1, 1970	July 1, 1970	Aug. 1, 1969
To be built new by car builders	23,074	23,308	42,079
To be built new in R.R. shops	5,966	6,841	9,154
To be built new—total	29,040	30,149	51,233
To be rebuilt	5,804	6,353	4,589
TOTAL ON ORDER	**34,844**	**36,502**	**55,822**

TRANSIT

● *New York City Transit Authority.*—Ohio Brass Co. has been awarded a contract exceeding $2 million for the supply of automatic, hook-type couplers for 240 cars which St. Louis Car Division of General Steel Industries is building for NYCTA. It will be the first time NYCTA has utilized this type of coupler. The order, placed with O-B by St. Louis Car, also carries options for 60 more cars for use in New York City and 52 cars earmarked for Staten Island Transit.

● *Bay Area Rapid Transit.*—Awarded a multimillion-dollar contract (exact amount unspecified) to Stewart-Warner Corp. for design, manufacture and installation of a computerized passenger-information display system. The system will be capable of announcing train destinations, schedule changes, safety tips, weather reports, news and sports messages. A total of 276 double-faced signs, installed along trackside areas at 33 stations, will be linked to a computer control center at the Lake Merritt Station in Oakland.

PASSENGER-TRAIN CARS

● *New York/Connecticut.*—Bids on 144 cars which the New York Metropolitan Transportation Authority and the Connecticut Transportation Authority plan to acquire for service on the New Haven Division of Penn Central were opened in New York City Aug. 31. General Electric was the apparent low bidder at $61.9 million. Pullman-Standard bid $68.5 million. There were no other bids. The high per-car cost—averaging $422,000 under the GE offer, and $476,000 under the P-S bid—has led MTA and CTA to consider ordering fewer cars than originally planned, and/or applying to the Federal government for two-thirds of the total. Under the original plan, the Federal government was to have provided half of the money and each of the states 25%. The cars had originally been budgeted at a total of $36 million, or $250,000 apiece. It had been known for some time that the actual cost would be substantially higher—due not only to inflation but the fact that the New Haven cars must be equipped for both AC (catenary) and DC (third-rail) operation. Dr. William J. Ronan noted that the Long Island Railroad cars ordered four years ago from Budd came to $217,000 each, and the New Jersey "Arrow" cars ordered at about the same time from St. Louis Car cost $275,000 each. The 130 double-decker commuter cars now being built by St. Louis Car for the Chicago South Suburban Mass Transit District (for service on Illinois Central) cost a total of $39,783,000, or $306,700 per car.

CAR OWNERSHIP

● *Serviceable cars.*—Revenue freight cars in serviceable condition owned by Class I railroads on July 1 totaled 1,353,596, compared with 1,369,510 on July 1, 1969, according to most recent AAR Car Service Division report. Estimated total ownership of all railroad- and privately-owned freight cars on July 1 (see table below) was 1,784,724 (average capacity: 66.52 tons), compared with 1,787,935 (average capacity: 65.02 tons), on July 1, 1969.

ESTIMATED OWNERSHIP—ALL REVENUE FREIGHT CARS
(July 1, 1970 vs. July 1, 1969)

		Box	Covered Hopper	Gondola	Hopper	Flat	Refg.	All Others	TOTAL
Class I	1970	543,522	128,577	190,356	392,015	72,048	55,003	51,365	1,432,886
	1969	545,961	124,868	194,534	402,382	70,201	52,755	55,161	1,445,862
RRO&C Refgs.*	1970	0	0	0	0	0	45,499	0	45,499
	1969	0	0	0	0	0	46,874	0	46,874
All Other Private	1970	1,193	34,973	2,307	2,321	50,276	14,770	176,151	281,991
	1969	1,109	31,824	2,064	2,119	46,252	13,650	174,262	271,280
Class II & S&T Cos.†	1970	9,190	717	4,299	7,160	527	1,458	997	24,348
	1969	8,099	698	4,566	7,722	590	1,080	1,164	23,919
GRAND TOTAL	1970	553,905	164,267	196,962	401,496	122,851	116,730	228,513	1,784,724
	1969	555,169	157,390	201,164	412,223	117,043	114,359	230,587	1,787,935

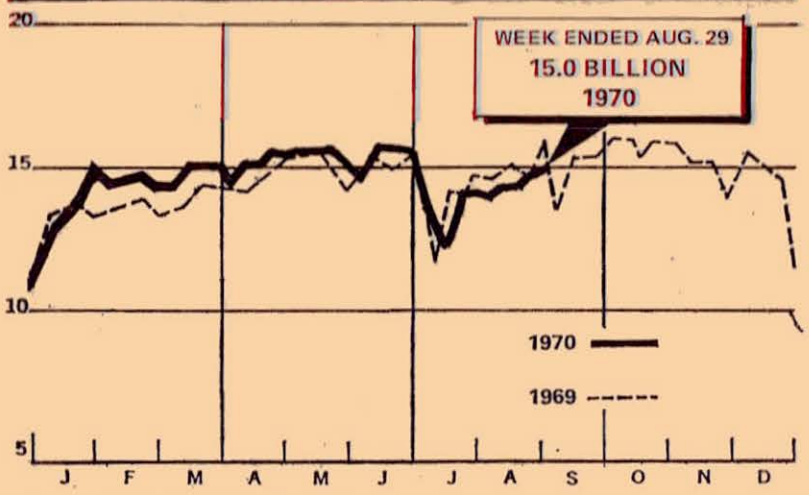
* Railroad owned and controlled refrigerator car lines.
† Class II railroads and switching and terminal companies.

NEW FACILITIES

● *Canadian National.*—Will build a new express terminal on a 100-acre site in the Symington Yard to serve the Greater Winnipeg area. The terminal will have 99 docks for loading and unloading of containers, 42 of which will be enclosed. Bids were due Sept. 11.

RAIL FREIGHT TRAFFIC TRENDS

BILLION TON-MILES (Estimated)



Source: Association of American Railroads

SHIPMENTS OF RAILROAD STEEL PRODUCTS

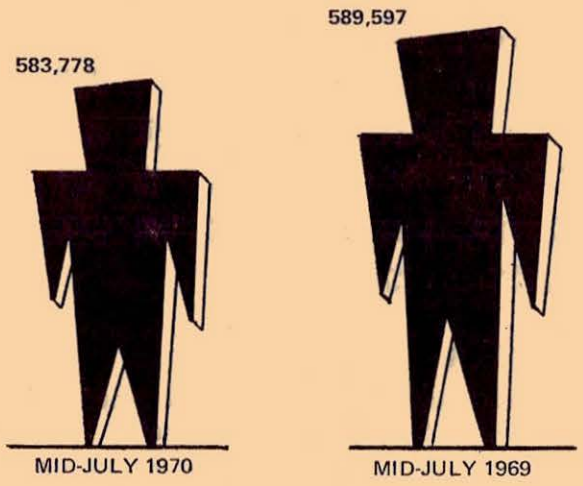
(JUNE AND SIX MONTHS 1970)

	NET TONS			
	June	Per Cent Change*	Six Months	Per Cent Change*
Rails, trackwork and equipment	93,355	-13.8	633,081	0.0
Freight and passenger cars and locomotives	163,959	-9.6	1,142,041	-5.9
Street railways and rapid transit systems	4,670	-1.3	20,595	-1.5

*Per cent change compares 1970 periods with like 1969 periods.
Source: American Iron and Steel Institute.

RAILROAD EMPLOYMENT

(CLASS I LINE-HAUL RAILROADS)



Source: Bureau of Accounts, ICC.

Viewpoint

Short lines are short only in mileage

The first railroad was a short line. And despite the 20th-century trends to bigness and corporate streamlining, it seems safe to say that there will always be a short line—or maybe a couple hundred of them.

In general terms of measurement, you could lump all the Class II carriers and switching and terminal companies together and come up with about 5% of the industry. But it's a 5% with a certain amount of leverage. Class II roads, for instance, have been accounting for about 5.5% of originated freight tonnage, about 6.6% of freight tonnage handled. They do the job with less than 2% of the industry's employee force, and less than 1.5% of the freight-car fleet. As a group they have been able to maintain a respectable standing by such key measures as net railway operating income, and dividends paid. In 1968, the most recent year for which totals are available, Class II roads posted a collective operating ratio a good 10 points under the figure recorded for Class I carriers.

The short-line mystique, however, can't be explained by figures alone. As one short-line-watcher puts it, the secret of the small railroad's continued existence can be summed up in a word: Intimacy. By its very nature, the short line is close to its shippers and receivers. Its costs are rather easily ascertained. Service problems can be attacked with a local phone call. In many cases, a general manager can survey the condition of his power, equipment and fixed plant in an afternoon.

To be sure, there has been attrition in the ranks of the short-haul carriers. Membership in the American Short Line Railroad Association (which holds its 57th meeting Sept. 21-22 in St. Louis) has slipped somewhat, to a current total of 218 roads. And there does seem to be a growing feeling among larger roads that (1) the cause of quality transportation would be better served if there were fewer operating companies involved, and (2) switching and terminal lines in particular may have outlived their usefulness.

KEY TO SURVIVAL: FILLING A NEED

By the latest available count, the nation is served by more than 730 railroad companies—including Class I and Class II and lessors, switching and terminal roads, proprietary lines and six companies which the ICC classifies as "unofficial." Even if the lessor lines are subtracted, more than 600 companies remain—and that's a lot of organizational structure for railroading in this day and age. And the switching and terminal roads? They add up to about one-third of the 600-plus operating companies.

How have all these short-haul carriers managed to survive, at a time when many Class I roads are hard-pressed to make ends meet? Each individual company, probably, has an individual set of circumstances going for it. Things like good divisions, low overhead, low operating ratios and employee pride play a part. But in the end, the short lines are governed by the same laws of economics that operate anywhere in transportation: You fill a need . . . you provide a service . . . you stay close to your customers . . . and, hopefully, you end up the month with money in the bank.

DOYLE: "There is no magic button"

From his academic aerie at Texas A&M University in College Station, Texas, Maj. Gen. John P. Doyle, USAF Ret., watches the current transportation scene with detachment, humor, and considerable insight.

It has been ten years now since the famed Doyle Report was published, and it still stands as the most comprehensive survey of over-all national transportation policy ever made. Of its many recommendations, the creation of a U.S. Department of Transportation has been perhaps the most celebrated. But Gen. Doyle himself believes that the Report's greatest long-range accomplishment has been the adoption of more effective cost accounting procedures by carriers and the ICC and a resulting emphasis on cost as a factor in determining rates.

Gen. Doyle, now a professor of transportation at A&M's Texas Transportation Institute, is fully conversant with the latest developments in transportation around the nation. He wrote his report at the direction of the Congress, but he clearly is not Congress's man. Certain senatorial proposals to abolish or consolidate the ICC with other regulatory agencies are, he told Railway Age in an interview, "utter nonsense, and the senators themselves know it. They blame the system for transportation problems, when the real problem lies with Congress's failure to keep regulatory law up to date."

In the General's view, there is too much "pulley hauling" in Washington. "Everyone spends a lot of time seeking magic wands," he affirms. "Justice will say something's bad because it's bigger. Another department will say it's bad because it's never been done. And then —Bejesus!—the politicians spend a lot of time seeking their magic buttons. Last year, it was highways; this year, it's safety; next year, it'll be the environment. The truth is," declares Gen. Doyle, "there is no one magic button. We must go back to first principles if we want answers. Why was regulation started? What can best serve the transportation user?"

"Ten years ago, the railroads spurned government aid," points out the General. "They would have spurned it even if it had been offered, and even if they were in the red, as many were. Well, now they need it, but how? It shouldn't just be a matter of pouring in bucks. What has the government done to aid Eastern railroads in getting subsidiary truck lines to haul freight from rail centers?" he asks. "There's no point in insisting that a railroad send an empty train down a deserted track once or twice a week."

Here he might well have cited the Report itself when it says "the points at issue . . . in common ownership . . . have been obscured by the smoke of battle" and "Congress cannot decide these questions in the public interest by a blanket refusal to allow all modes to integrate."

Continues Gen. Doyle: "What has the government ever thought of doing to get TRAIN (the AAR's TeleRail Automated Information Network to maintain close tabs on freight car supply) working? Nothing—and this system will go a long way towards achieving effective car utilization."

There never has really been a unified approach to a national transportation policy, concludes the General, and there never will be one until Congress and the carriers and shippers and public decide, "What do we want?"

—Reid Beddow

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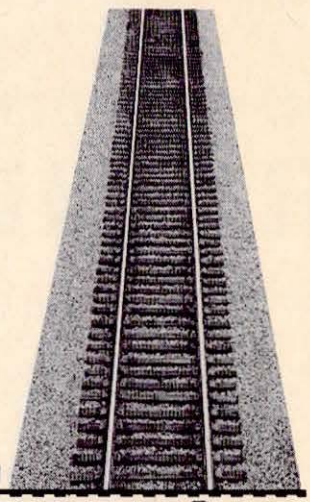

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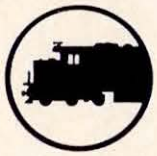

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How the IC builds a better railroad

(Continued from page 51)

business) in a decade or so. For the shorter range? One insider makes this observation: "I'd be disappointed, if TOFC/COFC doesn't account for about 25% of revenue—again excluding coal —five years from now." One of the moves IC plans to make is the issuance of a container tariff—one tailored specifically for the requirements of the container business.

One of the principal aids marketing and sales people will have is the so-called cost/profit calculator. This measurement tool, one marketing man declares, "will be a great help in gauging our present product mix—and in giving us the indication as to where the profitable areas are."

Commuters and passengers

One place where profitability isn't is the passenger business, and it doesn't take a sophisticated study to show it. IC, like many another railroad, faces serious problems in intercity traffic. Its loss last year, on an avoidable-cost basis, was about $8 million. Perhaps more significant, its car fleet is aging.

Thanks to train-offs and an improvement in equipment utilization, IC is now operating about half as many mainline cars as it was a few years ago. But replacement of even this shrunken fleet would cost in the neighborhood of $70 million—and, as Vice President-Passenger Services Henry F. Davenport points out, "There isn't a financial house in the country that will buy a passenger equipment certificate today."

Somewhat brighter—but only slightly—is the situation involving IC's suburban operation. Here, at least, there will be new equipment—130 air-conditioned, double-deck coaches which will begin arriving from St. Louis Car in December. Acquisition of 20 additional cars would enable Davenport to retire all of IC's late-1920s-vintage commuter cars—and IC is working on just such an order.

Suburban service may even show a profit—though it will be less than 2% by present estimates, which include the effects of recent substantial fare increases. As with Ingram and Reistrup, however, Davenport can also look forward to patronage increases—5% per year minimum, and more if a totally new community at the south end of the commuter line develops as planned.

With this brand-new commuter operation, with over-all operating improvements and with marketing sales acting as an idea factory, IC could be showing one showcase after another. ■

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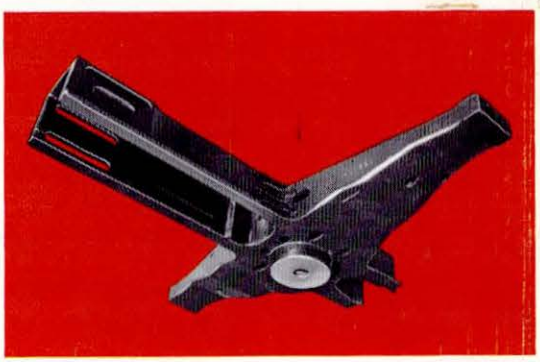

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